GERMAN TANKS IN NORMANDY 1944

The Panzer, Sturmgeschütz and Panzerjäger forces that faced the D-Day invasion

STEVEN J. ZALOGA

ILLUSTRATED BY FELIPE RODRÍGUEZ

NEW VANGUARD 298

GERMAN TANKS IN NORMANDY 1944

The Panzer, Sturmgeschütz and Panzerjäger forces that faced the D-Day invasion

STEVEN J. ZALOGA ILLUSTRATED BY FELIPE RODRIGUEZ

CONTENTS

THE TANKS, DOCTRINE, AND ORGANIZATION 4

- Organization
- Panzer operational doctrine
- Small-unit Panzer tactics

TECHNICAL FACTORS 16

THE CAMPAIGN 26

BATTLE ANALYSIS 42

FURTHER READING 46

INDEX 48

GERMAN TANKS IN NORMANDY 1944

The Panzer, Sturmgeschütz and Panzerjäger forces that faced the D-Day invasion

THE TANKS, DOCTRINE, AND ORGANIZATION

With the threat of an Allied invasion becoming ever more likely, the Wehrmacht began to reinforce the *Westfront* through the spring of 1944. Until 1944, the bulk of the Panzer force was deployed on the Russian Front. For example, in July 1943, there were 1,989 operational tanks, of which 1,265 tanks (63 percent) were deployed on the Russian Front, 382 (19 percent) under OKW[1] in the West, and 342 (17 percent) in the Heimat (Homeland) for unit reconstruction and training. The proportion of tanks assigned to the West increased through early 1944. In May 1944, Panzer strength in the West exceeded the Russian Front for the first time since 1940. After the D-Day landings occurred on June 6, 1944, this trend continued. For example, the 9.Panzer Division and Panzer-Lehr-Division, en route to the Russian Front, were re-routed to France. Since there were nearly three times as many infantry divisions on the Russian Front as in France, the ratio of Panzers to infantry was much higher in the West.

German operational tank strength 1944: East vs West

	May	Jun	Jul	Aug	Sep
East	1,044	1,244	1,511	1,691	1,485
OKW	1,654	1,797	2,014	1,723	1,534
Homeland	1,157	1,011	983	874	846
Total	**3,855**	**4,052**	**4,508**	**4,288**	**3,865**

Organization

GFM Gerd von Rundstedt's OB West (Oberbefehlshaber West: High Command-West) controlled German ground units on the Invasion Front. This included Rommel's Heeresgruppe B on the Invasion Front and Heeresgruppe G in central and southern France.

Lower Normandy and Brittany were defended by 7.Armee, led by Generaloberst Friedrich Dollmann until he died of a heart attack on June 28, 1944, and was replaced by Generaloberst der Waffen-SS Paul Hausser. Panzergruppe West, led by General der Panzertruppe Leo Freiherr Geyr von Schweppenburg, was the strategic Panzer reserve and was initially

1 Oberkommando der Wehrmacht: Armed Forces High Command in command of units in Italy, France, the Low Countries, and Scandinavia.

subordinated to 7.Armee. In late June 1944, Panzergruppe West took over control of the eastern sector of the Normandy Front facing the British/Canadian forces, permitting 7.Armee to concentrate on the American sector. Panzergruppe West underwent several organizational iterations during the campaign, spawning Panzergruppe Eberbach for the Lüttich offensive, and being re-designated as 5.Panzer Armee on August 5, 1944.

This Panther Ausf A, number 351, was commanded by Rittmeister von Günther, who led Schwadron.3, I./Panzer-Regiment 24, 116. Panzer-Division. It was knocked out near Bas-Bois, on August 3, 1944.

Panzer tactical units in Normandy included Panzer and Panzergrenadier divisions as well as various types of smaller formations attached to corps and divisions. The chart below shows the major armor formations in France shortly after D-Day. France was a major training area for the Wehrmacht, and there were several Panther and Tiger battalions in France in June that were earmarked for the Russian Front once re-equipped. These have been omitted from this chart. Panther battalions incorporated into Panzer divisions after June 10 are included in their divisional totals.

Panzer units in the West, June 10, 1944

	PzKpfw III	PzKpfw IV	Panther	Tiger	StuG	JagdPz IV	Beutepanzer	Total
Divisions								
2. Pz.Div		98	79			21		198
9. Pz.Div		78	40		5			123
11. Pz.Div (s. France)	26	89	4		8	21		148
21. Pz.Div		112						112
116. Pz.Div	13	86	9		6			114
Pz.Lehr Div		98	88			31		217
1. SS-Pz.Div		45	54		45			144
2. SS-Pz.Div		54	78		42			174
12. SS-Pz.Div		98	66			21		185
17. SS-Pz.Gr.Div					42			42
Regiments								
I./SS-Pz.Rgt 9 (9. SS-Pz.Div)			40					40
I./SS-Pz.Rgt 10 (10. SS-Pz.Div)			4					4
Battalions								
s.SS-Pz.Abt 101				45				45
s.SS-Pz.Abt 102				45				45
Pz.Abt 205							51	51
Pz.Abt 206							46	46
Pz.Abt 213 (Channel Islands)							36	36
Pz.Abt(Fkl) 302					10			10
Pz.Ers.u.Ausb.Abt 100							46	46
Total	39	758	462	90	158	94	179	1,780

A PzKpw IV Ausf H, tactical number 837, commanded by SS-Ustuf Jeran, leader of 3. Zug, 8./II./SS-Panzer-Regiment 12, that was lost during the fighting on July 6 between Cheux and Caen. It is seen here being towed away by a Cromwell ARV of the 11th Armoured Division.

The Panzer divisions were almost evenly divided between Heer (regular army) and Waffen-SS divisions. In June 1944, the Panzer divisions were generally under the Type 1943 KStN organization, and gradually began to shift to the Type 1944 organization in July–August. This mainly concerned a centralization of supply sub-units to conserve manpower, and so will not be detailed here. The Waffen-SS Panzer divisions were larger on average than their Heer counterparts in terms of personnel, with the average authorized strength on June 1, 1944, of the five Waffen-SS Panzer divisions in Normandy of 19,766 men vs the five Heer divisions of 15,444 men, about a 28 percent difference. Both types of division on average had small shortfalls of personnel in June: 6.3 percent in the Waffen-SS divisions and 3.7 percent in the Heer divisions.

On paper, both Waffen-SS and Heer Panzer divisions were very similar in terms of tank and AFV strength. The real differences between the various Panzer divisions in Normandy were due to the vagaries of the re-equipment process that took place in the late winter of 1943 and into 1944 as these divisions were rebuilt for the summer campaign. Some units were substantially complete when committed to Normandy, while others had distinct shortfalls in equipment and organizations. So for example, the Panzerjäger battalions of the 9.SS- and 10.SS-Panzer Divisions were still in formation in the early summer of 1944 and were not deployed until August; the 1.SS- and 2.SS-Panzer Divisions substituted Sturmgeschütz battalions for Panzerjäger battalions.

Generally speaking, each Panzer division had a single Panzer regiment, two Panzergrenadier regiments, and an artillery regiment as their principal combat formations. The Panzer regiment generally had two battalions,

Jagdpanther 334 of 3./s. Panzerjäger-Abt 654, commanded by Unteroffizier Teltau, was part of Kampfgruppe Schnepf supporting the 276. Infanterie Division defending against the British Army's Operation *Bluecoat* offensive near Aunay-sur-Odon. It was abandoned near Saint-Georges-d'Aunay on the night of August 2/3, 1944, after it bogged down.

the first battalion with the Panther tank and the second battalion with the PzKpfw IV tank. There were exceptions. The 21.Panzer Division, 10.SS-Panzer Division, and 116.Panzer Division lacked a Panther battalion in June 1944. The 116.Panzer Division was eventually provided with a Panther battalion in late July 1944 before being committed to combat.

A Marder II 7.5cm PaK 40/2 Panzerjäger of 2./Panzerjager-Abt 50, 9.Panzer Division, abandoned near Livarot to the northeast of Falaise and captured by Canadian troops. This was one of the least-common versions of Panzerjäger in Normandy. The battalion's nine surviving Marder IIs were supposed to be replaced in July 1944 with the Jagdpanzer IV, but they did not arrive prior to the division's dispatch from southern France to Normandy. (LAC)

The 21.Panzer Division was an outlier in many other respects. After the namesake division was lost in North Africa, a new division was created in France in July 1943 around the improvised Schnelle Brigade West. Its core formation, Panzer Regiment 100, was equipped with war-booty French tanks as well as obsolete German tanks such as the PzKpfw III and PzKpfw IV "kürz" with the short L/24 gun. The brigade also incorporated many "Becker conversions" that were war-booty French tanks and half-tracks converted into tank destroyers or self-propelled artillery. After Panzer Regiment 100 was converted into Panzer Regiment 22, it had a conventional first battalion equipped with PzKpfw IV tanks, but its second battalion kept the motley selection of obsolete German and war-booty French tanks. The division's assault gun battalion was equipped with 7.5cm and 10.5cm Geschützwagen on war-booty French Hotchkiss chassis instead of the usual StuG III. It also had an additional Panzerjäger battalion with towed 8.8cm PaK 43 guns not found in normal Panzer divisions in Normandy.

In comparison to Panzer organization earlier in the war, the 1944 Panzer division had a smaller Panzer component and a larger Panzergrenadier (armored infantry) component. This balance reflected the need for greater defensive capability in response to Germany's declining strategic fortunes. In comparison to Allied divisions, the German Panzer divisions had fewer tanks and more infantry. For example, a US Army 1943 pattern armored division had 251 tanks (168 M4 medium and 83 M5A1 light tanks), while a typical German Panzer division had a paper strength of 170 tanks, though in practice it was closer to 135 at the start of the Normandy campaign. In terms of armored infantry, the US division had three battalions, while the German division had double the amount with six battalions. German Panzer divisions generally had only one of their six Panzergrenadier battalions equipped with armored half-tracks, though some of the Waffen-SS divisions had two battalions and the Panzer-Lehr Division had all six so equipped.

There was only a single Panzergrenadier division committed to Normandy, the 17.SS-Panzergrenadier Division "Götz von Berlichingen." This was a new division created in November 1943 and was not completely organized by D-Day. For example, it had no armored half-tracks, two of its Panzergrenadier battalions were still bicycle-mobile, it was short by 1,440 trucks of the 1,685 authorized, and it was short of 40 percent of its officers and NCOs.

The Marder I 7.5cm PaK 40/1 auf Geschützwagen Lorraine Schlepper (f) was one of the earlier Becker conversions of war-booty French armored vehicles, undertaken in the summer of 1942. Many of these were deployed on the Russian Front. About 40 served in the static infantry divisions' Panzerjäger companies in Normandy in 1944. This one, named *Löwe* (Lion), is seen here in a US Army holding area south of Trévières in the late summer of 1944, and was probably from either the 709. or 716. Infanterie Division.

Probably the most famous Panzer units in Normandy were the three Tiger heavy tank battalions, two of them Waffen-SS and one of them Heer. These helped create the Tiger legend during the battle at Villers-Bocage on June 13.

There were a few minor units in France in 1944 equipped with war-booty French tanks. The Pz.E.und. Ausb.Abt 100 (Panzer replacement and training battalion) fought against the 82nd Airborne Division at the La Fière bridge causeway early in the campaign. The neighboring formation, Pz.Abt 206, was largely destroyed in June during the fighting with the US Army on the approaches to Cherbourg. Some security (*Sicherungs*) units in France included small Panzer formations with war-booty French tanks.

There were a number of assault gun units deployed to Normandy. These were generally assigned to corps headquarters which could in turn assign them to infantry divisions or other formations for specific missions. These were principally equipped with the StuG III, though one battalion, Sturmpanzer-Abt 217, was equipped with the 15cm Sturmpanzer IV.

Separate assault gun units in Normandy

	Quantity	Combat debut
StuG.Abt 902	31	Jun 11
Fs.StuG.Brigade 12	22+9*	Jun 13
Sturmpanzer Abt 217	28**	Jul 21
StuG.Brigade 341	33+12*	Jul 31
StuG.Brigade 394	31	Aug 3
StuG.Abt 1348	10	Aug 5

**StuG + StuH*
***Sturmpanzer IV*

A

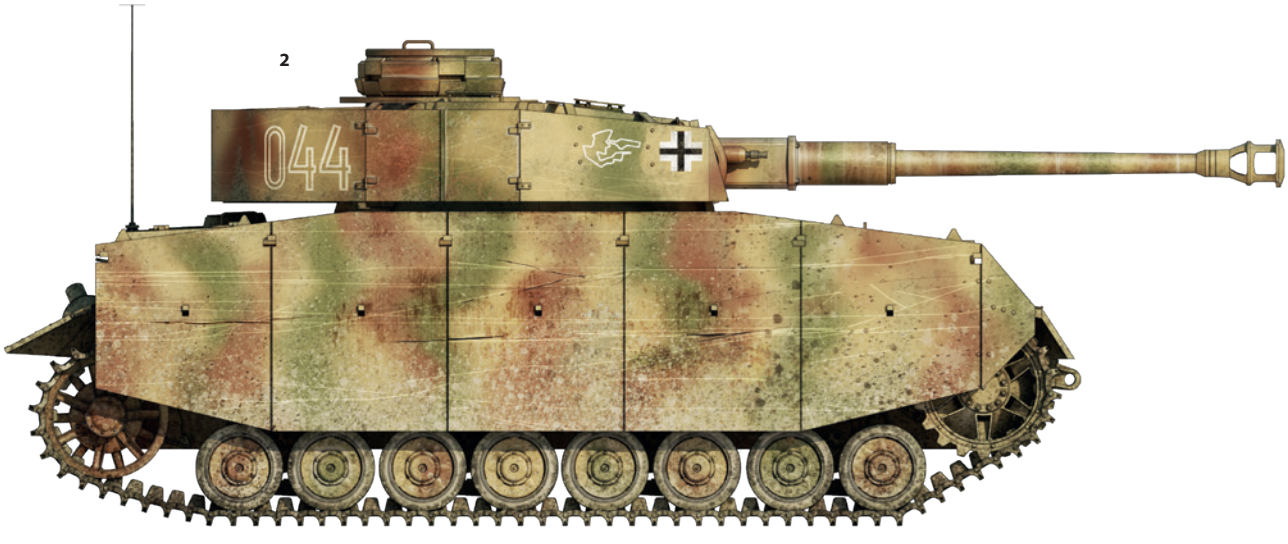
1. PzKpfw IV AUSF C, 8./PANZER REGIMENT 22, 21.PANZER DIVISION, NORMANDY, JUNE 1944

The second battalion of Panzer Regiment 22 still had six PzKpfw IV "kürz" tanks with the short L/24 gun left over from the previous Pz.Rgt.100 training unit. They were all in 8.Kompanie. They appear to have been finished in the old dark grey paint scheme, but with bands of the newer RAL 7028 dark yellow added. They do not appear to have carried tactical markings.

2. PzKpfw IV AUSF H, AUFKLÄRUNGSZUG, STAB./SS-PANZER REGIMENT 2, 2.SS-PANZER DIVISION, GUÉHÉBERT, JULY 29, 1944

The staff company of a Panzer regiment under the 1943 KStN.1103 had an Aufklärungszug (reconnaissance platoon) with five PzKpfw IV tanks. In the case of 2.SS-Panzer Division "Das Reich", the numbering pattern appears to have been to use the tactical prefix number "04" for the Aufklärungszug and the final suffix number, in this case "4" to indicate the fourth tank within the platoon. This tank carries an unusual cartoon representing a Panzermann looking through binoculars, based on cartoons that appeared in the *Panzerfibel* manuals. This cartoon presumably was intended to highlight the platoon's observation role. The standard camouflage pattern adopted in 1943 consisted of a base finish of RAL 7028 dark yellow, with patches of RAL 6003 olive green and RAL 8017 red brown applied by the unit in the field or depots issuing the tanks.

1



2

Many German infantry divisions had a Panzerjäger battalion for antitank defense. Usually these were equipped with towed 7.5cm PaK 40 antitank guns. A number of infantry divisions in Normandy had the upgraded battalion that had a company of Marder III 7.5cm PaK 40 Panzerjäger and a company of StuG III assault guns.

The Infanterie (*bodenständig*) divisions were reduced-strength, static divisions used for coastal defense. Several of these in France had a Panzerjäger company equipped with one of the Becker conversions, a 7.5cm PaK 40 Marder I on war-booty French Chenillette Lorraine armored tractor chassis.

Infantry armored units in Normandy

Infantry divisions*	Marder I	Marder III	StuG	Combat debut
16.Lw			10	Jul 1
243.		14	10	Jun 7
326.		14	10	Jul 25
331.		14	10	Aug 10
346.		14	10	Jun 8
352.		14	10	Jun 6
353.		14	10	Jun 17
708.(b)	10			Jul 4
709.(b)	10			Jun 6
711.(b)	10			Jun 6
716.(b)	10			Jun 6
Total	**40**	**84**	**70**	

**Lw: Luftwaffe, (b)= bodenständig*

An assortment of war-booty French tanks can be seen in this US Army holding yard in August 1944. In the foreground is a turretless Renault R 35 followed by a Hotchkiss H 39, tactical number 224. The Hotchkiss was probably from Pz.Ers.u.Ausb.Abt 100 that was largely destroyed during the fighting on the Cotentin peninsula in June 1944. The 7.5cm PaK 40/3 Marder III Ausf H in the background was a rarity in Normandy, and this one was probably from 3./SS-Panzerjäger.Abt 17, which was one of the only units to operate the type there. Further in the background are some old World War I Renault FT tanks, used in static defense along the coast and by security units.

There was only a single heavy tank destroyer unit in Normandy, s. Panzerjäger-Abt 654, equipped with the Jagdpanther. This battalion was generally broken up into its three companies, with each company assigned missions with different divisions.

German units seldom remained at original strength once committed to combat, since replacement tanks were not available in sufficient numbers. The supply of replacement tanks to the West is detailed in the accompanying chart. As will be noted, most of the replacement tanks were delivered in June during the reconstruction of several of the Panzer divisions earmarked for Normandy. Supplies after June were very modest compared to the heavy attrition suffered by the Panzer divisions in France. German policy was to retain many of the new production tanks to reconstruct units that had been withdrawn from the fronts, or to create new Panzer units. Starting in July 1944, many of the replacement Panther and PzKpfw IV tanks were kept in Germany for the creation of 19 new Panzer brigades. These

required more than 1,350 new Panzers and AFVs, substantially absorbing much of the summer's tank production. For example, of the approximately 735 new Panthers delivered in July–August 1944, 335 (46 percent) went to the new Panzer brigades and 340 to the Russian Front (46 percent), leaving crumbs for the West.

Panzer/AFV replacements in the West: June–August 1944

	June	July	August	Total
PzKpfw II	0	1	0	1
Pz.III (Bef)	4	0	4	8
Pz.III (Beob)	7	2	0	9
PzKpfw IV	121	31	11	163
Panther	256	83	8	347
Panther (Bef)	16	5	0	21
Tiger I	48	42	14	104
Tiger I (Bef)	3	3	0	6
StuG III	15	56	59	130
Stu.Pz IV	0	45	0	45
Marder III	0	2	1	3
Total	**470**	**270**	**97**	**837**

Bef=Befehlspanzer (Command tank)
Beob=Beobachtungspanzer (Observation tank)

The new Panzer brigades were intended to serve as "fire brigades" on the Russian Front. In the event, many were rushed to the West in September 1944 to help stem the rout of the Wehrmacht in France. They first saw action in the West in September 1944 in the Netherlands against the *Market Garden* airborne operation and during the Panzer offensive against Patton's Third US Army in Lorraine.

Panzer Operational Doctrine

German doctrine on the use of Panzer divisions to repel an amphibious invasion favored the retention of the Panzer divisions as a mobile operational reserve. Once the location of the landing was evident, they would conduct a massed counterattack. This tactic was employed against Operation *Husky* on Sicily in July 1943, Operation *Avalanche* at Salerno in September 1943, and Operation *Shingle* at Anzio in January–February 1944. In all three cases, the Panzer counterattacks failed to throw the Allies back into the sea, though in some cases they came close.

Rommel, who was present in Italy in the summer and autumn of 1943, recognized that Allied advantages in air power and naval gunfire doomed the Panzer counterattacks. He rejected established German doctrine, arguing that only a shoreline defense could repel an Allied invasion. He wanted to deploy any available Panzer divisions near the beaches so that they could intervene immediately and crush the landings promptly. Rommel wanted the heaviest concentration around the mouth of the Somme River in the Dieppe sector, but he also suggested deploying the 12.SS-Panzer Division at the base of the Cotentin peninsula between the future Utah and Omaha Beaches, and the Panzer-Lehr Division between the Vire and the Orne rivers behind the future British/Canadian beaches.

Most of the senior commanders remained committed to traditional German doctrine and preferred to keep the Panzer force in reserve. They

pointed out the adage of Frederick the Great: "Who defends everything, defends nothing." Since the invasion might occur at many possible locations, there were not sufficient Panzer divisions to cover all likely invasion sites.

The strongest proponent of the traditional doctrine was General. Frieherr Leo Geyr von Schweppenburg, who headed Panzergruppe West. Geyr was supported in this argument by the inspector-general of the Panzer Troops, General Heinz Guderian. They argued that the Panzer army should be concentrated north of Orléans, over a hundred kilometers south of Paris, so that they could be directed wherever the Allies landed, whether the Pas-de-Calais, the mouth of the Somme, Normandy, or Brittany. In May 1944, Guderian changed his opinion and urged a concentration further west near Le Mans that might have put the force much nearer to Normandy.

In the face of this controversy, Hitler assigned three divisions – 2.Panzer Division, 21.Panzer Division, and 116.Panzer Division – to Rommel's Heeresgruppe B, and the remaining four to the Panzergruppe West reserve. In reality, Rommel controlled only one division, the 21.Panzer Division, since the other two had not completed their reconstruction by D-Day and were not on the Normandy coast.

As Rommel predicted, the Wehrmacht had a great deal of difficulty in moving the Panzer divisions forward once the invasion started due to Allied air supremacy and the damage inflicted on the French railway network by pre-invasion bombing. As detailed below, the plans to use the Panzer divisions to counterattack the beachhead failed to materialize.

In the weeks after the invasion, the debate shifted focus. Geyr and Guderian advocated keeping the Panzer divisions in reserve behind the infantry divisions' HKL (Hauptkampflinie: main line of resistance), with the Panzer divisions venturing forth to counterattack any Allied penetrations. Rommel disagreed with this argument for several reasons. He argued that the Caen sector would be the center of gravity of the Allied attack, and therefore committed the majority of the Panzer divisions there as they became available. However, there were only five infantry divisions committed to the Caen sector in the first month of fighting, and they were insufficient to create a viable defense.

Once the Allies had managed to land sufficient reinforcements by late June, the arguments over Panzer tactics proved largely irrelevant in the face of the weakness of the Wehrmacht in Normandy. Rommel was deeply pessimistic about the ability to maneuver Panzer forces in Normandy as advocated by Geyr and Guderian due to Allied air superiority and the Allied advantages in field artillery and naval gunfire in the Caen sector.

The Panzer commanders such as Geyr, Guderian, and later Eberbach came to realize that the senior German commanders were simply unaccustomed to contemporary combined-arms warfare. Geyr later remarked that:

> "Of all the German generals, GFM von Rundstedt knew the least of Panzer tactics. He was an infantryman of the last generation. He and his staff were armchair strategists who didn't like dirt, noise, and tanks in general. As far as I know, GFM von Rundstedt was never in a tank. Do not misunderstand me; I have the greatest respect for von Rundstedt. But he was too old for this war … It was impossible to obtain clear-cut decisions on the broader, controversial issues. The ship was not steered, it drifted … I had a free hand in the training of Panzer forces in the West and General Obst Guderian and

I saw eye-to-eye about this. I should have been allowed to employ these forces as they had been trained. Hitler, with his 1918 ideas of trench warfare, also was responsible for the incorrect use of the Panzer forces."

Panther Ausf A "Ursula," from I./ Panzer Regiment 6, knocked out by a M10 3in GMC of the 899th Tank Destroyer Battalion during the ill-fated Panzer-Lehr Division attack near Le Desert on July 11, 1944. A penetration can be seen on the hull side, which led to a catastrophic ammunition fire that burned out the tank. "Ursula" probably served in the reconnaissance platoon of the battalion's headquarters company.

Although Rundstedt and Geyr did not agree on Panzer tactics in Normandy, they both agreed that the German defenses forward of Caen were too vulnerable to Allied naval gunfire and that the main line of resistance should be withdrawn further away from the coast. In late June, after meeting with Hitler, the matter came to a head. Hitler rejected Geyr's notions of flexible defense and sacked Rundstedt over his pessimistic outlook on German fortunes in Normandy. Hitler was annoyed by Geyr's impertinent description of his planning as a "tactical patchwork" in one of his reports and sacked him on July 4, replacing him with another Russian Front Panzer veteran, Heinrich Eberbach.

Rundstedt's replacement, Gunther von Kluge, continued to use the Panzer divisions in the main line of resistance. Guderian was highly critical of Kluge's misuse of the Panzer divisions in Normandy in July 1944, particularly his tendency to use the divisions piecemeal in hopes of solving local tactical emergencies. He later noted that:

"Rundstedt went along with us, in principle at least. But Kluge cut the divisions to pieces … he actually split the Panzer divisions into several parts. He separated the tanks from the Panzergrenadiers and artillery, employed them with infantry units not trained in Panzer warfare. Therefore, he failed to get favorable results … Hitler and Kluge wanted to hold the main line of resistance with all troops available, and treated the Panzer units as nothing more than infantry. In theory, Hitler knew the difference well, but in practice [in Normandy] he made a great mistake."

Geyr's replacement, Eberbach, sided with Geyr and Guderian, and argued that a mobile defense (*beweglichen Verteidigung*) was needed. He also recognized that Panzergruppe West did not have enough infantry divisions to pull back the Panzer divisions into a mobile reserve for counterattacks. In the face of this dilemma, he made the bold suggestion that the Wehrmacht should give up southern and central France, freeing up infantry divisions both for Normandy and for the creation of a deep defense on the Seine–Vosges line. In the wake of the bomb plot against Hitler on July 20, the Führer became ever more adamant about a rigid defense of Normandy. Kluge was at the periphery of the bomb plot, and so was especially wary of provoking Hitler's wrath. As a result, he was unwilling to support Eberbach's prudent suggestions.

Hitler and the OKW rejected any strategic retrenchment in France, favoring rigid defense in Normandy and refusing to consider any withdrawal of Heeresgruppe G from southern-central France. By late July, OB West had

Due to the prevalence of Allied fighter-bombers, camouflage was essential for Panzers in Normandy, as in this case of a PzKpfw IV Ausf H of II./SS-Panzer-Regiment 12 "Hitlerjugend."

run out of Panzer reinforcements and battlefield attrition gradually gutted the Panzer force in Normandy.

The eventual Allied breakout from Normandy during Operation *Cobra* exposed the doctrinal problem. The 7.Armee commander, Paul Hausser, kept his limited Panzer force along the main line of resistance, and instead used understrength infantry divisions as his reserve. Kluge complained to Hausser about this mistake, but was distracted by the British offensives around Caen. Hausser had deployed his forces in this unfortunate fashion due to weakness of the infantry divisions in the 7.Armee sector after the attritional battles with First US Army in the bocage (small fields with thick hedgerows) earlier in July. American planners appreciated the badly weakened state of the Panzer-Lehr Division, and focused the *Cobra* attack precisely against this sector.

Small-unit Panzer tactics

When asked about small-unit Panzer tactics in Normandy compared to the Russian Front, Guderian remarked that:

> "There were no great differences. The variations lay in the terrain, the seasons of the year, and of course, the enemy. The tactics and training were always the same, taken from the service and training regulations [*Dienstvorschriften und Ausbildungsvorschiften der Panzertruppen*]. Enemy air power did alter our tactics in the West. In the East, we could move in the daylight and often with great speed, but not in the West."

The Wehrmacht tried to adapt to the new circumstances in Normandy. Initial Panzer attacks in daylight were met with air attacks and naval gunfire. At first, Geyr attempted to conduct Panzer attacks at night, such as the costly fighting against the Canadian 3rd Infantry Division from June

B

1. BEOBACHTUNGSWAGEN III AUSF G, SS-PZ.BEOBACHTUNGS-BATTERIE, I./SS-PANZER ARTILLERIE REGIMENT 2, 2.SS-PANZER DIVISION "DAS REICH," RONCEY POCKET, JULY 29, 1944

Small numbers of PzKpfw IIIs were still in service in 1944, often in specialized roles such as this artillery forward observer vehicle. The mechanized artillery regiment of "Das Reich" often named their vehicles after historical German figures, in this case Lützow, after Prussian general Ludwig von Lützow who fought in the Napoleonic Wars. This was applied in the old Fraktur/Blackletter script.

2. PANZERSPÄHWAGEN II AUSF L LUCHS, I./PANZER-AUKLARUNGS-ABT 9, 9.PANZER DIVISION, BAS-AUBRY, AUGUST 1944.

The reconnaissance battalion of the 9.Panzer Division was the only unit to use this rare light tank in Normandy, with 26 tanks, about a quarter of total production. The division used an unusual pattern of tactical numbers, with the first number being assigned to sub-units, for example "4" (reconnaissance battalion), "5" (tank destroyer battalion), and "6" (artillery regiment). The second number indicated the company, the third the platoon, and the fourth number the individual tank.

1
Lützow
2
4121

7–10. As a result, Geyr promoted the adoption of "jungle tiger tactics" (*Jungel-Tigr-Taktik*) in Normandy. He argued that daylight attacks were simply too dangerous under the circumstances, while night attacks tended to result in chaos and confusion. Instead, he argued that Panzer attacks be concentrated at dawn and dusk to reduce the possibility of air attacks or aerial observation, while avoiding the pandemonium of night attacks. While these tactics might have been possible if the Wehrmacht had retained the operational initiative, in reality the timing of combat was usually determined by Allied offensive operations. German small-unit tactical doctrine insisted that any enemy penetration of the main line of resistance be immediately counterattacked in force before the enemy could consolidate their newly won positions. As a result, Panzer counterattacks took place at all times of the day, regardless of whether it was more prudent to conduct them at dawn and dusk.

Although the popular view of Panzer divisions today focuses on their tanks, in reality, the 1944 Panzer division was based primarily on its two Panzergrenadier regiments since it had only a single understrength Panzer regiment. As a result, many of the lessons from Normandy focused on Panzergrenadier/infantry tactics rather than tank tactics. These lessons are outside the scope of this book.[2]

TECHNICAL FACTORS

The balance of Wehrmacht tanks and AFVs differed significantly between the West and the Russian Front in 1944. Tanks were the predominant weapon in the West, while StuG and Panzerjäger self-propelled guns were predominant on the Russian Front.

Tank and AFV types: West vs East, Summer 1944 (as percentages)

	Panzer	StuG	Panzerjäger
West	69.0	20.2	10.7
East	44.5	39.8	15.6

The Wehrmacht intended to replace its existing medium tanks with the Panther, starting in 1943. At the beginning of the Normandy campaign, Panthers represented about a third (34 percent) of German tank strength, while the older PzKpfw IV comprised more than half (56 percent). The Panther was arguably the best tank on the Normandy battlefield. It possessed an exceptionally strong balance of firepower, armored protection, and mobility. Its frontal armor was impervious to most Allied tank guns, except for the British 17-pdr. Its

This Panther Ausf G of SS-Panzer Regiment 12 spearheaded the attack of 12.SS-Panzer Division into the village of Bretteville-l'Orgueleuse on the night of June 8/9, 1944, reaching the command post of the Canadian Regina Rifles. The sentry there, Rifleman Joe LaPointe, fired three PIAT antitank grenades before the third one finally penetrated the Panther. It was then accidently struck in the rear of the turret by a trailing Panther, setting off a massive internal fire that burned all night and destroyed the tank.

2 See: Zaloga, Steven, *Panzergrenadier versus US Armored Infantryman: European Theater of Operations 1944–45*, Osprey Combat 22 (2017).

side armor was vulnerable to the principal Allied tank guns, so its vulnerability largely depended on circumstance. The Panther's long 75mm gun was lethal against all Allied tanks at typical battlefield ranges. It also had excellent mobility, especially in the summer months.

The Panther's combat debut in the summer of 1943 at Kursk had been a technical embarrassment. It had been rushed into service and was technically immature. The advent of the improved Panther Ausf A cured many of the technical problems of the original Ausf D. By May 1944, the Panther's operational rate on the Russian Front was 70 percent, peaking at 80 percent the following month. These trends were significant in Normandy, since there were hardly any of the old Panther Ausf Ds in service with the Panzer regiments in Normandy. Most Panzer regiments in France were equipped with the newer and more reliable Panther Ausf A, and a growing number of the simplified Panther Ausf Gs also began to show up in Normandy.

Aside from inherent mechanical problems such as the Panther's troublesome final drives, the Panzer force in Normandy had difficulties keeping the vehicles in running order due to chronic spare-parts shortages. Eberbach estimated that in the Caen sector, the Panzer units received only about 17 percent of the spare parts needed.

GIs of the 137th Infantry, 35th Division, pass by a knocked-out PzKpfw IV Ausf J, number 802, commanded by Oberleutnant Wilhelm Tulzer of 8./II./Panzer Regiment 3, 2.Panzer Division, in Pont-Farcy on 3 August, 1944. Four tanks of this company attempted to hold the crossroads there on August 2, but were destroyed by air attack. This particular tank, Fgst.Nr 89435, was built at the Nibelungenwerk in April 1944.

Panzer operational rate in Normandy, 1944*

Date	June	July	August
PzKpfw IV	65.8	73.9	69.6
Panther	54.0	59.4	69.5
Tiger	83.8	61.1	43.9

**Percentage of tanks operational vs number in short-term repair; data on long-term repair lacking*

This Tiger I was found abandoned in the town of Marle on August 31 by Task Force Mills of CCB, 3rd Armored Division. The 3rd Armored Division was the first US Army unit to encounter the Tiger I in Normandy on August 28, when a train carrying three disabled Tigers was shot up and stopped by M15A1 antiaircraft half-tracks of the 486th AA Battalion in Braines, about 50km south of Marle. By August 29, s.SS-Pz.Abt 101 had been reduced to only five Tiger tanks, and all were lost on August 30 during scattered engagements in the vicinity of Marle at Rozoy, Brunehamel, and St Quentin. Doubts have been expressed about whether this tank belonged to s.SS-Pz. Abt 101, and it may have been one of six replacement Tigers delivered to the Nachschub West replacement depot on August 22.

The first Tiger II tanks issued to units in Normandy went to Panzer-Kompanie (Funklenk) 314, a specialist formation that used the tanks as command posts for radio-controlled demolition vehicles. They were seldom operational due to severe mechanical problems. This particular example broke down and was abandoned in the early morning of 17 August, 1944, on Boulevard Kellerman in Châteaudun. Later, it was hit on the left side by a M18 76mm GMC of the 818th Tank Destroyer Battalion and subsequently pushed off the road into a crater, as seen here.

Although the Panther was highly regarded in most Panzer units, there were dissenters. Fritz Bayerlein, commander of the Panzer-Lehr Division, thought that the Panthers were too troublesome to operate in the bocage terrain after his division was shifted there in July 1944. The tank's long barrel made it difficult to traverse in the narrow country roads that were often bordered by substantial hedgerows. Under these circumstances, he preferred the PzKpfw IV, which had more than adequate firepower at the short ranges typical of this sector.

As a result of the shortage of Panther tanks, the PzKpfw IV remained the workhorse of the Wehrmacht in Normandy. By 1944, the PzKpfw IV was a mature and relatively reliable design. The operational rate of the PzKpfw IV on the Russian Front in 1944 was 76 percent in May and 84 percent in June, second only to the StuG III assault gun. Most Panzer regiments were equipped with the PzKpfw IV Ausf H, which was in production from the spring of 1943 to the summer of 1944. The simplified PzKpfw IV Ausf J entered production in June 1944, and small numbers appeared in Normandy late in the summer.

The PzKpfw IV was roughly comparable to the principal Allied tank, the M4 Sherman, with slightly better firepower than the standard 75mm versions but inferior firepower to the Sherman 17-pdr Firefly. Armor levels were

Tiger II, tactical number 133, of 1./s.Pz.Abt 503 knocked out in Le Plessis-Grimoult south of Villers-Bocage on August 7. The Tiger crew was replenishing ammunition from a nearby vehicle when a 2in mortar bomb from A Company, Duke of Cornwall's Light Infantry, struck the ammunition. In the ensuing explosion, the turret of the Tiger II was knocked off its ring. This has the early turret and was the 31st Tiger II manufactured (Fgst.Nr 280031).

similar. In terms of mobility, the Sherman had a more robust suspension than the PzKpfw IV, though it is doubtful this had much impact on combat effectiveness in the summer months.

The Tiger I tank was the iconic Panzer in Normandy, if for no other reason than the rout of the 7th Armoured Division during Operation *Perch* near Villers-Bocage on June 13, 1944. In many respects, the Tiger I could be crowned the premier German tank in Normandy, but for the fact that so few were actually operational in the theater at any one time. They represented only 3 percent of the German tank force at the start of the campaign, and only three battalions were eventually committed to the fighting. The Tiger legend in Normandy was in no small measure due to the tendency of Allied soldiers to refer to virtually any German tank or AFV as a "Tiger."

Panzer-Aufklarungs-Abteilung 9, 9.Panzer Division, was the only unit to employ the Pzkpfw II Ausf L in France in the summer of 1944, with 26 tanks operational in July. This was a relatively rare type with only about 100 manufactured. At least two of these still survive, this one at the Musée des Blindés in Saumur, France, and the other at The Tank Museum in Bovington, UK. Both surviving examples were abandoned intact in Bas-Aubry near St Lambert-sur-Dives. (Author)

The Tiger was still a formidable weapon. Its 8.8cm gun was better balanced than the 7.5cm gun on the Panther, offering both very lethal antitank performance as well as better high-explosive firepower than the Panther. Its armor layout was also more balanced than the Panther's, with better flank protection. Tiger reliability was never its strong suite, and the operational rate for them on the Russian Front was 64 percent in May and 73 percent in June 1944, worse than either the PzKpfw IV or Panther.

The Tiger went from its pinnacle in 1943, when it was virtually invincible, to being just another tank in 1944, albeit a very good one. A directive issued to Tiger units in 1944 made this point very clear:

> "When Tigers first appeared on the battlefield, they were in every respect proof against enemy weapons. They quickly won for themselves the title of 'unbeatable' … But in the meantime, the enemy has not been asleep. Antitank

A pair of 7.5cm Panzerjäger 38(t) Ausf M Marder IIIs, from 1./ Panzerjäger Abt 243, destroyed next to Église Saint-Côme et Saint-Damien on the main road through Roncey in late July 1944 during Operation *Cobra*. This detachment was commanded by Leutnant Kröning after the previous company commander, Oberleutnant Bürkle, became a casualty in the fighting.

A 4.7cm Pak(t) auf PzKpfw 35R(f) of 3./Schnelle Abt 517, Schnelle-Brigade 30, found abandoned by GIs near the Littry oratory on Route D189 on the outskirts of Le Molay-Littry. The villages were captured by the US 2nd Infantry Division on June 10, 1944. Five of these served in the battalion's 3.Kompanie, its bicycle-mobile company. About 200 of these tank destroyers had been converted from war-booty French tanks, armed with war-booty Czechoslovak guns. Pz.Jag.Abt 657 was another unit in Normandy with this type, and further examples served with Pz.Abt 213 on the occupied Channel Islands.

guns, tanks, and mines have been developed that can hit the Tiger hard and even knock it out. Now, the Tiger, for a long time regarded as a 'Life insurance policy' is relegated simply to the ranks of a heavy tank … No longer can the Tiger prance around, oblivious to the laws of tank tactics. They must obey these laws, just as every other German tank must."

This became abundantly clear in the case of the legendary Tiger ace, SS-Hauptsturmführer Michael Wittmann of s.SS-Pz.Abt 101. Wittmann's

C

1. TIGER I, 2./S.SS-PZ.ABT 101, VILLERS-BOCAGE, 13 JUNE 1944

This is the Tiger I used by Obersturmführer Michael Wittmann during the famous action at Villers-Bocage on June 13, 1944. Wittmann did not always use the same tank. There is a well-known series of photos of him in his usual tank, number 205, on June 7, but there is also film footage of him on Tiger 231 on June 9–10. When the 2.Kompanie was alerted of the British advance around 0900hrs, Wittmann walked from the Fermes des Hauts-Vents and boarded the nearest Tiger, number 234, of Uscha Steif. This tank had engine problems, so Wittmann switched to the next tank, 212, commanded that day by Uscha Sowa. The tactical numbers of the Stab and first platoon of the 2.Kompanie used a lighter color, probably yellow, rather than the red used by the rest of the company. Around 0930, Wittmann's Tiger was engaged by a Sherman 17-pdr commanded by Sgt Stan Lockwood of B Squadron, 2 Troop , 4 CLY, 22nd Armoured Brigade, that was hidden partly behind a house further down Rue Pasteur near Place Jeanne d'Arc. Both tanks fired two rounds at each other, with Wittmann's missing and Lockwood's hitting the Tiger's front plate at least once. Wittmann turned around on Rue Pasteur, but the Tiger broke down near the Huet-Godefroy store on Rue Clémenceau inside Villers-Bocage. Wittmann and the crew escaped, arriving at the battalion HQ in the Chateau d'Orbois around 1100.

2. TIGER I, 3./S.SS-PZ.ABT 101, ÉVRECY, JUNE 14–15, 1944

This particular Tiger I was commanded in Normandy by SS-Uscha Schöppner and was knocked out by the carpet bombing on June 15, 1944. It was photographed in Mons, Belgium, in May 1944, with the tactical number in white with black trim. Some tanks of this company had the bright tactical numbers overpainted in medium blue with yellow or white trim, but it is unclear whether that was done to this particular tank prior to its loss in Évrecy. It has the gun travel lock on the engine deck, suggesting it was built at the end of 1943 or early 1944.

1

2

A StuG III Ausf G knocked out during fighting with the US Army's 110th Infantry, 28th Division, near Le Neubourg on August 24, 1944. This particular example, built at Alkett, has the late-style return rollers introduced in January 1944, the *Saukopf* (pig's head) mantlet introduced in October 1943, and the shot deflector in front of the commander's cupola introduced in September 1943.

rash actions at Villers-Bocage on June 13 were instrumental in the German victory there, but his tank was knocked out in the fighting. In the summer of 1944, the Allies finally had weapons that could defeat the Tiger and its technological immunity was evaporating. Wittmann's careless tactics on August 8 led to the destruction of his own Tiger and at least four others by a volley of British and Canadian Sherman 17-pdr fire.

Besides the Tiger I, the newer and heavier Tiger II (or Kingtiger) saw its combat debut in Normandy. Some of the first of the new Tiger II tanks were issued to Panzer-Kompanie (Funklenk) 314, a specialist formation that used the tanks as command posts for radio-controlled demolition vehicles. A dozen Tiger II tanks were subsequently issued to s.Pz.Abt 503. The Tiger II saw its combat debut on July 18 during the Operation *Goodwood* fighting near Caen. Tank losses in the Caen fighting were so severe that 3./s.Pz.Abt 503 was pulled out of the line and re-equipped with new Tiger II tanks. By the time that the unit was ready to return to combat, its parent battalion was trapped in the Falaise gap. The 3.Kompanie was sent instead to reinforce German defenses north of Paris near Mantes, where the company suffered heavy losses to US tank destroyers in the late August fighting.

Comparative technical characteristics

	PzKpfw IV Ausf H	Panther Ausf A	Tiger I	StuG III Ausf G
Crew	5	5	5	4
Dimensions: L x W x H (m)	7.02x2.88x2.68	8.86x3.42x2.98	8.45x3.7x2.93	6.77x2.95x2.16
Loaded weight (tonnes)	25.0	44.8	57.0	23.9
Main gun	75mm KwK40	75mm KwK42	88mm KwK36	75mm StuK40
Main gun ammo	87	79	92	54
Engine (hp)	300	600	650	300
Max speed (km/h)	38	46	38	40
Fuel (liters)	470	720	534	310
Range (km)	210	200	140	155
Ground pressure (kg/cm2)	0.91	0.88	1.5	0.93
Armor**				
Mantlet (mm)	50*=>50	100*=>100	110@0=110	80@0=80
Turret front (mm)	50@5=50.2	100@5=100.4	100@0=100	n/a
Turret side (mm)	33@25=36.4	45@25=49.6	80@0=80	n/a
Upper hull front (mm)	80@8=80.8	80@55=139.4	100@8=101	80@10=81.2
Lower hull front (mm)	80@14=82.8	65@55=113.3	100@27=110.3	80@21=85.1
Upper hull side (mm)	30@0=30	40@40=52.2	80@0=80	30@0=30

**Curved*

***Armor data provided as: actual thickness in mm @ angle from vertical = effective thickness in mm*

After the war, British Army analysts attempted to quantify the relative combat effectiveness of the opposing tanks. This was based primarily on the "holy trinity" of tank design: armor, mobility, and firepower. It did not

consider other factors such as mechanical reliability. The ratings were based on how many Allied tanks were necessary to match the combat effectiveness of a given German tank. So for example in the case of the PzKpfw IV versus the Cromwell, it took 1.35 Cromwells to be equivalent to a PzKpfw IV. These ratings were dependent on the range of the engagement as well, so for example the 75mm Sherman tank was rated as slightly inferior to the PzKpfw IV at 1,000 yards, but slightly better at 1,500 yards.

German vs Allied tank combat effectiveness*

	Range (yards)	Cromwell	Sherman 75mm	Sherman 17-pdr
PzKpfw IV Ausf H	1,000	1.35	1.1	0.9
	1,500	1.5	0.9	
Panther Ausf G	300	1.85	1.55	1.2
	600	1.85	1.55	1.2
	1,000		2.0	
Tiger I	300	1.9	1.65	
	600	1.9	1.6	0.9
	1,000			0.9
Kingtiger	300	3.2	2.7	
	600	3.2	2.7	1.55
	1,000			1.75

**E. Benn, R. Shephard, Tank Effectiveness: A Comparison of the Theoretical Measure with Observed Battle Performance (AORG Report No. 6/52, 1952)*

While the StuG III was the single most common type of tank or AFV on the Russian Front, it was relatively uncommon in Normandy at the start of the campaign. Most of the SS-Panzer divisions had a battalion of StuG IIIs, while the 17.SS-Panzergrenadier Division had the less-common StuG IV. More of these assault guns gradually arrived through the summer as a means to reinforce the Wehrmacht's hard-pressed infantry divisions.

There were relatively few independent Jagdpanzer formations in Normandy, except for s.Pz.Jg.Abt 654, equipped with the new Jagdpanther. This was a powerful weapon combining the long 8.8cm gun of the Tiger II with the Panther chassis. This battalion had a very disappointing combat record due to mechanical problems that dogged its operations in Normandy. The Panther final drive had long been its mechanical Achilles' heel, but the situation was much worse on the Jagdpanther. The additional weight of the glacis plate armor and the long gun barrel put a great deal of strain on the final drive. A unit history notes that the final drives lasted only 35km before breaking down. To make matters worse, spare parts were often not available, and access to the final drive for repair work was extremely time-consuming. For example, on July 18, 1944, a day after the battalion entered combat, of 25 vehicles on hand, only eight were operational; on August 1, of

A StuG IV assault gun of SS.Panzer-Abt 17, 17.SS-Panzergrenadier Division, knocked out by an Allied air strike along the Marigny–Montrevil road while leading a column escaping the Roncey pocket during the Operation *Cobra* fighting in late July 1944. The battalion had 42 assault guns at the start of the campaign, but that number had been reduced to ten by the start of Operation *Cobra* on July 25.

The only Sturmpanzer unit in Normandy was Stupa.Abt 217, equipped with the 15cm Sturmpanzer IV. The battalion was deployed piecemeal to Normandy by companies with 2./Stupa.Abt 217 in late July 1944, and 1./Stupa.Abt 217 in August 1944. This particular vehicle was part of 2.Kompanie and was lost in fighting along with three others near Bretteville-sur-Laize around August 8 to Canadian forces. (LAC)

26 Jagdpanthers, ten were operational and 16 were in repair; on August 12, of 21 Jagdpanthers, only two were operational and 19 were in repair.

The Jagdpanzer IV had originally been conceived as the Sturmgeschütz neuer Art (new model assault gun) to replace the StuG III. By the summer of 1944, the idea of using this vehicle as an assault gun was abandoned in favor of its employment as a tank destroyer. This vehicle was based on the PzKpfw IV chassis with a simplified fixed casemate and the same L/48 gun as the PzKpfw IV tank and StuG III assault gun. Starting in March 1944, they were issued to Panzer divisions for their tank destroyer battalions. Five of the Panzer formations in Normandy used the Jagdpanzer IV, as detailed on the accompanying chart. Several other Panzer divisions were issued the Jagdpanzer IV, but they did not arrive in time to take part in the Normandy campaign.

Panzerjäger battalions in Normandy with Jagdpanzer IV

Battalion	Parent division	Strength
Panzerjäger-Abt 38	2.Pz.Div	21
Panzerjäger-Abt 130	Pz.Lehr-Div	31
Panzerjäger-Abt 228	116.Pz.Div	21
SS-Panzerjager-Abt 12	12.SS-Pz.Div	21
SS-Panzerjäger-Abt 17	17.SS-Pz.Gren.Div	31

The most common Panzerjäger in Normandy were the various Marder types based on a light tank chassis and equipped with the 7.5cm PaK 40 gun. These were generally deployed in infantry division Panzerjäger companies. The Normandy campaign saw the extensive use of the "Becker conversions," mainly by the 21.Panzer Division. Major Alfred Becker commanded the horse-drawn Artillery-Regiment 227 of the 227.Infanterie Division during the 1940 campaign. During subsequent occupation duty, his unit collected a number of British light tanks and came up with the idea of using them to create improvised self-propelled guns. These served in Russia in 1941. In

D

1. TIGER II, 1./S.PZ.ABT 503, LE PLESSIS-GRIMOULT, AUGUST 1944

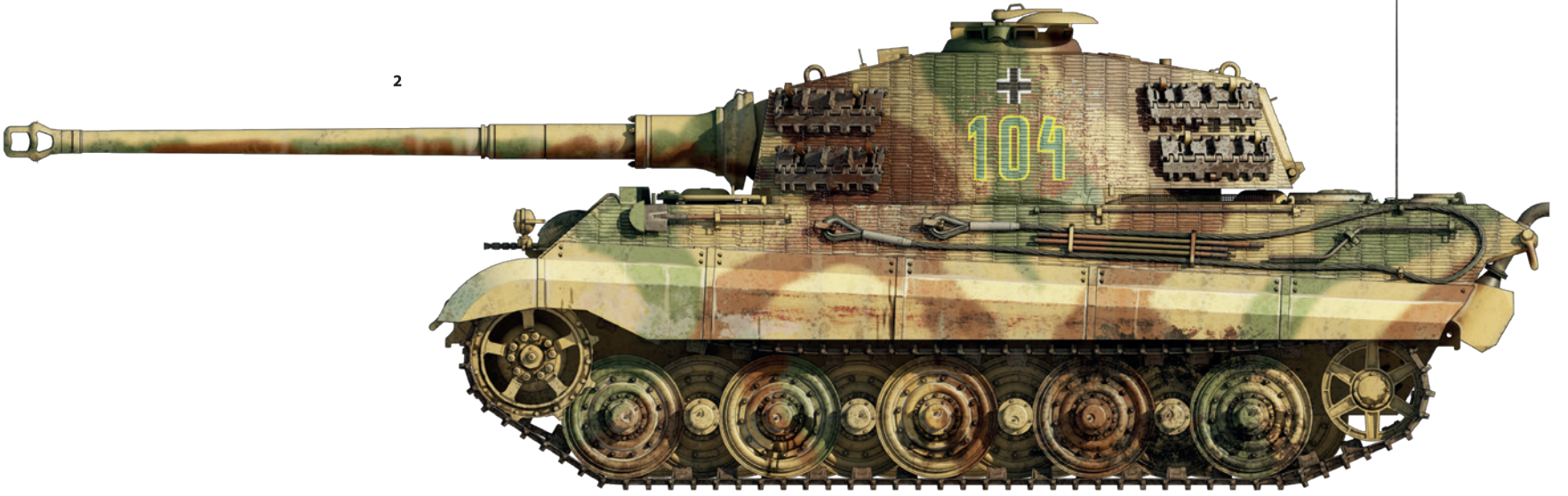
This Tiger II was marked as tactical number 133. It was manufactured with the early style turret and was the 31st Tiger II manufactured (Fgst.Nr 280031).

2. TIGER II, 1./S.SS-PANZER-ABTEILUNG 101, GOINCOURT, AUGUST 30, 1944

This Tiger II of 1./s.SS-Pz.Abt 101, commanded by SS-Uscha Sepp Franzl, was one of three surviving tanks from the unit that attempted to stop the British 8th Armoured Brigade near Goincourt, west of Beauvais, on August 30. The tank was marked with tactical number 104 in pale green with yellow trim. It was one of 14 Tiger II tanks shipped to s.SS-Pz.Abt 101 from July 26, with the final example delivered on August 1, 1944. It was manufactured on 18 July, 1944, Fgst.Nr 280093. It was later recovered by the British Army and has been displayed at the Shrivenham and Bovington museums.

1

2



ABOVE LEFT
Among the Becker conversions was the 7.5cm PaK 40 auf mSPW S307(f) based on war-booty French Somua half-tracks. These were deployed in the two Panzergrenadier regiments of the 21.Panzer Division, with four per battalion for a total of 16 in the division. This particular example has had one of its front armor panels blown off during combat.

ABOVE RIGHT
The Geschützwagen 7.5cm PaK 40 auf 39H(f) consisted of a war-booty French Hotchkiss H 39 light tank with a new superstructure armed with the standard 7.5cm PaK 40 antitank gun. These were used by Sturmgeschutz-Brigade 200 of the 21.Panzer Division as surrogate assault guns. Their important role in defeating Operation *Totalize* in the Cagny sector has been largely overlooked.

1942, Becker was involved in the development of the 7.5cm PaK 40 Marder I tank destroyer on war-booty French Chenillette Lorraine armored tractors, and a similar vehicle armed with the 15cm howitzer. These conversions proved successful enough that Baukommando (construction unit) Becker was created in France to make use of the large inventory of war-booty French armored vehicles. The conversion work was done at French automotive plants using armor plate provided by Alkett in Germany. The surplus French tank turrets were then incorporated into the Atlantikwall defenses.

When the 21.Panzer Division was recreated in the summer of 1943, its principal source of armored vehicles were the creations of Baukommando Becker. In total, Baukommando Becker converted about 1,800 AFVs, most of which served in France in 1944. During the Normandy campaign, Becker was assigned to command the 21.Panzer Division's Sturmgeschütz Abteilung 200, equipped with improvised assault guns based on French Hotchkiss H 39 light tanks with 7.5cm PaK 40 and 10.5cm howitzers.

THE CAMPAIGN

When the Allies staged the Operation *Neptune* landings in lower Normandy on June 6, 1944, there were few Panzer forces in the immediate area. Aside from a few training units and divisional Panzerjäger battalions, the only significant unit was the 21.Panzer Division in Heeresgruppe B reserve in the Caen area. Due to the confused chain-of-command, this division committed only a Kampfgruppe (battle group) to the counterattack against Sword Beach. On D-Day, OB West had about 1,900 tanks and AFVs under its control, but only about 120 tanks and assault guns were in the immediate invasion area, plus a few dozen war-booty French tanks and about 40 improvised assault guns on French chassis. Over the ensuing days, other divisions were mobilized from France and Belgium and rushed to the Normandy Front.

Rommel assessed the center of gravity of the Allied invasion to be in the British–Canadian Caen sector, and so focused the Panzer reinforcements there. The Caen sector consisted of open farmland that was more suitable for tank maneuver than areas further west. The bulk of the British and Canadian tank units were attempting to capture Caen, since it was envisioned as the operational fulcrum for a subsequent push to the German frontier. The American sector to the west was dominated by bocage and marshland, poorly suited to large-scale tank use. The initial Panzer reinforcements sent to Normandy were the 12.SS-Panzer Division "Hitlerjugend" from

Rouen and Panzer-Lehr Division from Chartres. They were followed in quick succession by the 17.SS-Panzergrenadier Division "Götz von Berlichingen" from south of the Loire, 2.Panzer Division from Amiens, 2.SS-Panzer Division "Das Reich" from Toulouse, and 1.SS-Panzer Division "Leibstandarte Adolf Hitler" from Belgium.

A PzKpfw IV Ausf H, tactical number 536, commanded by platoon leader SS-Ustuf Willi Kändler of 5.Kompanie, II./SS-Pz.Rt.12, 12.SS-Panzer Division, in Normandy in June 1944.

Part of the delay in reinforcing the Normandy Front was lingering uncertainty over whether the *Neptune* landings were the main Allied effort or a diversionary operation to deflect attention from a second, and principal, invasion. Berlin still considered it likely that a second and larger landing would take place by the 23 "ghost" divisions of Patton's fictitious 1st Army Group (FUSAG), perhaps at Le Havre, on the Pas-de-Calais, or at Brest. FUSAG was part of the Allied deception effort, Operation *Fortitude*. This confusion lingered late into July. The pace of reinforcement of the Normandy Front can be gauged by the accompanying chart that shows when various Panzer units began arriving. Since many units arrived piecemeal, regiment-by-regiment, the chart lists the initial commitments. Armored elements of infantry divisions such as the Panzerjäger battalions are not listed, though their armored component is included in the figures. The Panzer/AFV strengths are cumulative and do not represent actual operational strength due to attrition.

Commitment of Panzer/AFV units to the Normandy front

Unit	Initial deployment	Deployed Panzer/AFV strength to date*
21.Panzer Division	June 6	309
Pz.EuA-Abt 100	June 6	309
12.SS-Panzer Division	June 7	421
Panzer-Lehr Division	June 8	620
StuG.Abt 902	June 11	750
s.SS-Pz.Abt 101	June 12	795
Fs.StuG.Brigade 12	June 13	878
17.SS-Panzergrenadier Division	June 13	878
Panzer Abt 206	June 16	914
2.Panzer Division	June 18	1,120
s.Panzerjager-Abt 654	June 27	1,141
9.SS-Panzer Division	June 29	1,385
10.SS-Panzer Division	June 29	1,385
2.SS-Panzer Division	July 1	1,550
s.SS-Pz.Abt 102	July 3	1,590
1.SS-Panzer Division	July 6	1,865
s.Pz.Abt 503	July 10	1,918
Sturmpanzer Abt 217	July 21	2,000
116.Panzer Division	July 24	2,144
StuG.Brigade 341	July 31	2,289
StuG.Brigade 394	August 3	2,320
9.Panzer Division	August 4	2,507
StuG.Abt 1348	August 5	2,517
Replacement tanks	August 12–20	2,561

ABOVE LEFT
A PzKpfw IV Ausf Hs of 1./II./ Panzer Regiment 22 of the 21.Panzer Division dug in along the road from Caen to Lebisey. This tank was photographed on June 13 and probably knocked out a few days before.

ABOVE RIGHT
Some of the first armored attacks in the American sector occurred on June 7 when StuG III assault guns from 2./ Panzerjäger-Abteilung 243 attacked the 82nd Airborne Division outside St. Mère-Église . At least two were knocked out by airborne 6-pdr anti-tank guns.

Initial Panzer operations in Normandy were largely reactive, since the Wehrmacht did not possess enough strength to conduct large-scale counteroffensives. Hasty attacks against the British/Canadian beachhead in the days after the landings proved costly. The 12.SS-Panzer Division staged multiple attacks against the Canadian 3rd Infantry Division in the beachhead area over the course of June 7–10, including the reckless "Ride of the Valkyries" on the evening of June 8 near Bretteville. As a result of these four days of fighting, the 12.SS-Panzer Division lost a third of its tank strength, being left with about 95 operational tanks from its original 140 or so. The 21.Panzer Division was not as careless in its attacks, but in the first ten days of fighting its operational tank strength was reduced nearly in half from 112 to 65.

As more Panzer units were directed to Normandy, Panzergruppe West headquarters began planning a massed Panzer counteroffensive. It was scheduled for the second week of June, once the additional Panzer reinforcements arrived. Due to the delayed arrivals, Geyr proposed to speed up the attack by using forces on hand, about half of both the 12.SS-Panzer Division and 21.Panzer Division. Rommel agreed to this on the afternoon of

A focal point of the fighting between the 82nd Airborne Division and the 91.Luftlande Division in the days after D-Day was the La Fière causeway which provided exit for the paratroops from the bridgehead area. These attacks were supported by Pz.E.und. Aus.Abt.100, including a pair of PzKpfw 35R (war booty Renault R 35) and a PzKpfw 39H (Hotchkiss H 39) as seen here.

Fighting north of Ste Mère-Église along route N13 near Neuville-au-Plain pitted this 7.5cm Panzerjäger 38(t) Ausf M Marder III, from 1./Panzerjäger Abt 243 supporting the 91. Luftlande Division, against M4 tanks of the 70th Tank Battalion supporting the 82nd Airborne Division. This is the scene a few days later after one of the knocked-out M4 tanks was pushed off the road to clear it for traffic.

July 10, but Geyr had second thoughts later in the day when reports arrived that about 60 British tanks had broken through the Panzer-Lehr's defenses. As a result, the attack was postponed yet again.

British code-breakers, working in conjunction with radio-direction finding teams, discovered that the Panzergruppe West headquarters was located in a château near La Caine, southwest of Caen. They also located the I SS-Panzer-Korps HQ south of Tourville. At 2030hrs on June 10, the RAF's 2nd Tactical Air Force attacked the Panzergruppe West HQ with Typhoon fighters and Mitchell medium bombers. Geyr was wounded and 17 senior officers were killed, including the chief-of-staff. These air attacks disrupted the planned Panzer counteroffensive for the time being.

The Panzergruppe West headquarters was evacuated to Paris, with local tactical command temporarily given to I SS-Panzer-Korps which emerged unscathed by the air attacks. On June 16, at a meeting in Soissons with Rommel and Rundstedt, Hitler ordered a massed Panzer attack using seven Panzer divisions. Planning for Hitler's Caumont–Bayeux Panzer offensive began on June 18, and Rommel's Heeresgruppe B headquarters circulated possible variations to senior commands on June 22.[3] The basic plan was to drive for the sea near the junction of the First US Army and Second British Army.

Hitler began to dither. On June 22, he suggested that British forces east of the Orne River should be cleared out prior to the Caumont–Bayeux offensive. On June 24, he proposed changing

A Panther, tactical number 135, of 1./SS-Panzer Regiment 12 commanded by Ustuf Karl-Willi Dietrich that was knocked out by a Canadian PIAT, probably by Sgt Maj Basil Currie of the Regina Rifles during a night attack on June 8/9 near Bretteville-L'Orgueilleuse. This is an example of an early Panther Ausf G, the 104th manufactured at the MAN plant in late April 1944.

3 For further details, see Map 32 in: Zaloga, Steven, *Atlas of the European Campaign 1944–45*, Osprey, 2018.

A pair of Panthers of 3./SS-Panzer Regiment 12, part of a Hitlerjugend battle group with SS-Panzergrenadier-Regiment 25, return to the château in La Villeneuve-de-Rots following a failed attack on Norrey-en-Bessin on the afternoon of June 9. The village was defended by the Canadian Regina Rifles, supported by about a dozen Sherman tanks of the 1st Hussars and Fort Garry Horse. Seven Panthers were knocked out during the attack, mainly by Canadian Sherman 17-pdrs.

the focus from Caumont–Bayeux to the American sector at Carentan–Ste Mère-Église with an aim of disrupting the US Army attack on Cherbourg. On June 25, the British Army launched Operation *Martlet*, followed the next day by Operation *Epsom*, aimed at capturing Caen. The I SS-Panzer Korps warned that it might be forced to evacuate Caen. Instead, the forces intended for the Caumont–Bayeux offensive were allotted to a more limited counterstrike aimed at halting the British offensive. This took longer than expected. The 2.Panzer Division still lacked its Panther regiment, and the 2.SS-Panzer Division "Das Reich" was delayed after being harassed by French Resistance fighters on its trip from southern France. The II SS-Panzer Korps, transferred from the Russian Front, did not reach Normandy until June 29–30. The massed Panzer offensive intended to throw the Allies back into the sea never materialized. The Carentan–Ste Mère-Église attack proved even more illusory and was endlessly delayed; the fall of Cherbourg at the end of June made it irrelevant.

E

1. JAGDPANZER IV, 2./SS-PANZERJÄGER-ABT 17, LAVAL, FRANCE, AUGUST 1944

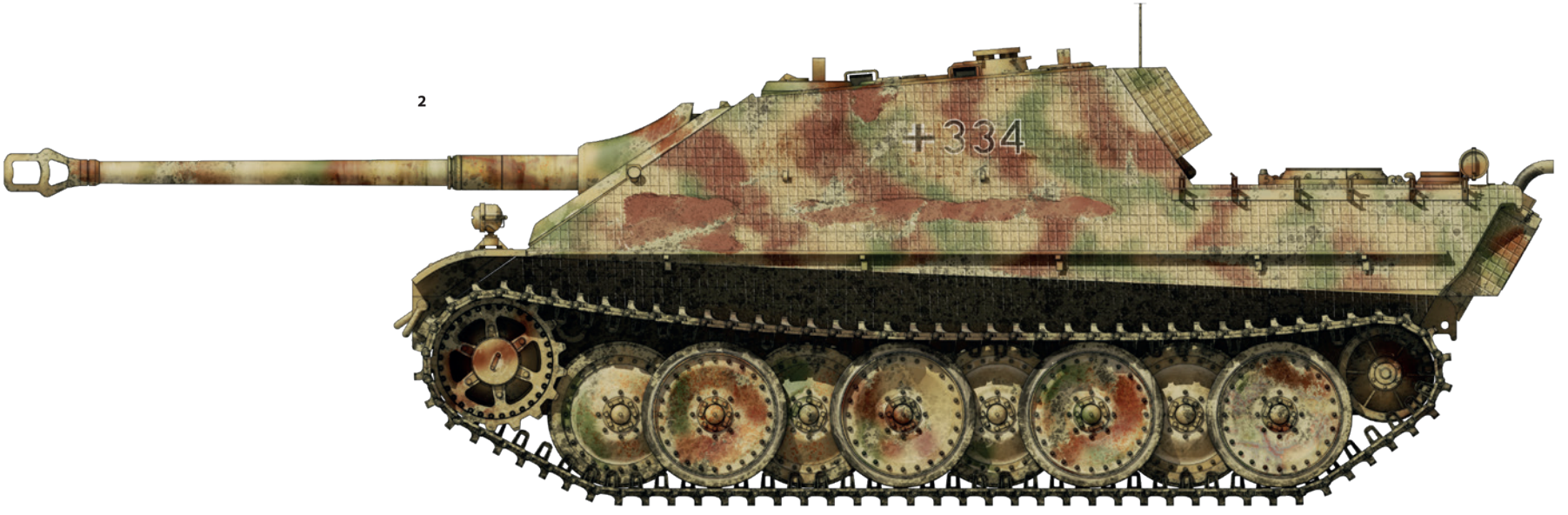
SS-Panzerjäger-Abt 17 was allotted 31 Jagdpanzer IVs in June 1944, but the companies equipped with these did not return to France until August 4. They fought separately from the rest of the division around Laval and Le Mans. This is a Jagdpanzer IV from 2./SS.Pz.Jg.Abt 17 knocked out on August 8 near Coulans-sur-Gée on the approaches to Le Mans during an encounter with the 90th Division, supported by the 712th Tank Battalion. Nine Jagdpanzers were knocked out in this fighting. Some of the vehicles had the tactical number in black with white trim, some without the white edging.

2. JAGDPANTHER, 3./S.PANZERJÄGER-ABT 654, KAMPFGRUPPE SCHNEPF, AUNAY-SUR-ODON, AUGUST 1944

Jagdpanther 334 was commanded by Unteroffizier Teltau. It was abandoned due to mechanical problems during the British Army's Operation *Bluecoat* offensive near Saint-Georges-d'Aunay on the night of August 2/3, 1944. The s.Panzerjäger-Abt 654 made a number of modifications on their vehicles, including the transfer of the tube for the barrel cleaning rods from the left hull side to the rear engine deck. They also removed the tool stowage racks on the hull side.

1

2



A Panther Ausf A, tactical number 234, nicknamed "Gerda" of I./Panzer-Regiment 6, Panzer-Lehr Division, south of Bayeux at Les Pallières farm near Juaye-Mondaye, during the afternoon of June 10, 1944. This tank was knocked out by a Sherman Firefly 17-pdr of A Squadron, 4/7 Royal Dragoon Guards, on June 20 near Lingèvres.

The Wehrmacht had considerable difficulty moving the Panzer divisions into Normandy, in part due to setbacks in re-equipping and reorganizing the divisions, but also due to the Allies' destructive air campaign against the French railway network. Allied intelligence had predicted that the Wehrmacht would have nine Panzer divisions in Normandy by D+10, but in fact only six had arrived.

By the beginning of July, seven Panzer divisions had been concentrated in the Caen sector. However, only five infantry divisions were available to Panzergruppe West, forcing the use of Panzergrenadier regiments to hold major portions of the defensive lines and making it difficult to keep the Panzer divisions in reserve for a counterattack. As Gen Eberbach later recorded, the Panzer divisions' "strength in men and materiel diminished with frightening rapidity … Within two to three weeks, the divisions employed at the focal points had been burned to cinders … Despite high losses, the Panzer divisions proved to be more resilient during the process of attrition than the infantry divisions."

Although the Wehrmacht failed to conduct a massed Panzer attack against the Allied bridgehead as had been anticipated, the continual German attacks in the Caen sector constricted the British/Canadian bridgehead area. As the fighting around Caen turned into a bloody attritional stalemate, Montgomery began to reconsider whether Caen could serve as the operational fulcrum for the Allied breakout from Normandy.

Opposing the First US Army were two Panzer battalions equipped with war-booty French tanks, a modest number of assault guns of the 17.SS-Panzergrenadier Division, and assorted small divisional sub-units. The

A scene on Rue Pasteur in Villers-Bocage after a second German attack on June 13 by 1./s. SS-Pz.Abt 101 had been ambushed by a British 6-pdr hidden on a side street. The Tiger in the foreground, tactical number 111, was commanded by Ostuf Hannes Philipsen. Behind it are a PzKpfw IV Ausf H, number 6, of KG Ritgen, Panzer-Lehr Division, on the left, and the Tiger 113 commanded by Oscha Heinrich Ernst. Michael Wittmann's Tiger, number 212, was knocked out further down the street earlier in the day and is not visible in this image.

A disabled Panther of 1./SS-Panzer-Regiment 9, 9.SS-Panzer Division, lost during the Operation *Goodwood* fighting near St André-sur-Orne and being inspected by a Canadian soldier of Les Fusiliers Mont-Royal on August 9, 1944. This is an example of a very early production Panther Ausf G manufactured in late April or May 1944 at the MAN plant. (LAC PA-114369)

17.SS-Panzergrenadier Division, in concert with neighboring infantry divisions, was ordered to seize Carentan on June 13. This plan was discovered by Allied signals intelligence and was deflected by the US Army. The area was not well suited to mechanized operations by either German or US forces. The fighting on the Cotentin peninsula in June was primarily an infantry battle with modest tank support.

When Cherbourg fell to the US Army at the end of June, it forced Heeresgruppe B to divert some of the Panzer divisions to the west. The 2.SS-Panzer Division was ordered to the American sector to serve as the 7.Armee reserve and Panzer-Lehr Division was gradually shifted into the American sector in an attempt to crush the American advance out of the bocage country beyond Saint Lô to the uplands behind the coast. As the US Army had already discovered, operating large tank formations in the bocage was exceedingly frustrating. This became evident to the Wehrmacht on July 11 when the Panzer-Lehr Division attempted to conduct a spoiling attack against the US 9th Infantry Division, suffering significant tank losses and making no gains.

The pace of Panzer reinforcement of the Normandy Front slowed in early July 1944. The Red Army had launched its Operation *Bagration* offensive on June 22, and by the end of the month, Heeresgruppe Mitte was on the verge of being encircled and destroyed. As a result, resources had to be rushed eastward. OB West was able to scrape together some additional Panzer units for Normandy later in July, such as finishing the reconstruction of the 116.Panzer Division and transferring the 9.Panzer Division from southern France to Normandy. Only the 11.Panzer Division was left in southern France to repel a probable Allied invasion there. By mid-July, senior Panzer commanders such as Eberbach recognized that a large-scale German Panzer counteroffensive to push the Allies back into the sea had become

A PzKpfw IV Ausf H of 8./II./SS-Pz.Rgt.2, 2. SS-Panzer Division, knocked out by a 37mm gun mounted on a M2 half-track of the 41st Armored Infantry Regiment of CCB, 2nd Armored Division, during the fighting for St Denis-le-Gast on July 29, 1944. Two tankers of the 67th Armored Regiment are inspecting it, with the tanker on the left pointing out the 37mm shell impact on the turret skirt near the number "1."

A Panther Ausf A of 3./SS.Pz. Rgt. 1, tactical number 328, abandoned by its crew after a Typhoon attack on August 7 during Operation *Lüttich*, about a kilometer west of Saint-Barthélémy along the Voie Saint-Louis, the current route D5. This particular tank, completed at the MAN plant in mid-February 1944, was recovered by the US Army and sent to the Aberdeen Proving Ground for evaluation. It was on display at the Ordnance Museum there for many years. The 1.SS-Panzer Division lost 17 Panthers in this immediate vicinity during Operation *Lüttich* of the 46 tanks at the start of the attack.

impossible due to the lack of sufficient divisions, lack of air support, and inadequate logistical support.

The intensity of tank fighting around Caen increased substantially in July due to the string of tank offensives by the Second British Army, including Operation *Epsom*/*Martlet* (June 25–July 1), *Charnwood* (July 8–9), and *Goodwood* (July 18–20). The Wehrmacht continued to display excellent tactical prowess, especially in defensive operations. Operation *Goodwood* was the largest and most controversial British tank offensive of the campaign, with a starting strength of 1,163 tanks. Eberbach later estimated the German strength in the sector as about 150 tanks, mainly from the 21.Panzer Division and 1.SS-Panzer Division, and a single Tiger battalion, s.Pz.Abt 503. A critical ingredient of the German defense was the array of antitank guns, especially the 8.8cm PaK 43 guns of Panzerjäger Abt 200 of the 21.Panzer Division. A total of 493 British tanks were disabled or destroyed, compared to German losses of about 45–85 tanks. It was a Pyrrhic victory for Panzergruppe West, and Eberbach later admitted that "we could not repeat such sacrifices very often."

One reason for the German success was the relative density of Panzer forces defending the Caen sector. This is evident when comparing the number of tanks and AFVs in this sector to other summer 1944 battles as detailed in the accompanying chart. Much the same was the case in terms of the density of antitank guns.

Average German armor densities, Summer 1944

Allied force	Operation	German force	Time frame	Frontage (miles)	AFVs	Density*
British 2nd Army	*Caen*	Panzergruppe West	mid-June 1944	20	675	33.8
First US Army	*Cobra*	84.Korps	July 26, 1944	20	155	7.8
Four Soviet fronts	*Bagration*	Army Group Center	June 1944	250	500	2.0
1st Ukrainian Front	*Bagration*	Army Group North Ukraine	June 1944	250	1,350	5.4

**Tanks and AFVs per mile*

By mid-July, the Westfront had a new commander, GFM Günther von Kluge. He initially took over the OB West command when von Rundstedt was sacked by Hitler on July 2, and then took over the command of Heeresgruppe B after Rommel was wounded in a strafing attack on July 17. Kluge remained preoccupied with the defense of the Caen sector and failed to recognize the substantial build-up of US Army tank forces following the capture of St Lo on July 18. Hitler insisted that Kluge revive Rommel's plan for a massed Panzer offensive to cut off the British advance south of Caen.

It took time to pull Panzer divisions out of the line and substitute infantry divisions in the forward defenses. The Caen Panzer offensive was scheduled for August 1.Panzer strength in Normandy reached its peak in mid–late July 1944, as noted in the accompanying chart.

Operational Panzer strength in Normandy 1944

Date	Jun 6	Jun 15	Jun 30	Jul 15	Jul 30	Aug 15
PzKpfw IV	112	535	360	355	340	85
Panther	0	285	190	220	195	55
Tiger	0	15	15	40	55	25
	112	**835**	**565**	**615**	**590**	**165**

On July 25, First US Army launched Operation *Cobra*. The German 7.Armee defense line crumbled and Panzer-Lehr Division was overrun. Two US armored divisions charged through the gaps and trapped the 2.SS-Panzer Division and 17.SS-Panzergrenadier Division in the Roncey pocket. On August 1, Lt Gen George Patton's Third US Army was activated, sending two more armored divisions racing down the coast further west and threatening to envelop all of 7.Armee. To make matters worse, on July 30, Montgomery initiated Operation *Bluecoat* along the boundary between the First US Army and Second British Army, tying down Panzer resources at a critical moment.

The relative scale of tank fighting in the various Allied sectors in the first two months of the Normandy campaign is very evident when comparing Allied tank kill claims through early August, as seen on the accompanying chart. The Caen sector accounted for three-quarters of the German losses. It should be noted that First Canadian Army was only activated on July 23, so kill claims by Canadian units prior to that date were included in the Second British Army totals; Third US Army was not activated until August 1.

ABOVE LEFT
A Panther Ausf A of II./Panzer-Regiment 33, 9.Panzer Division, knocked out immediately north of Argentan near Hill 213 around August 20, 1944, during the fighting with the US Army's 317th Infantry, 80th Division, while trying to keep open the Falaise gap. This battalion fought separately from the remainder of the division.

ABOVE RIGHT
A well-camouflaged Jagdpanzer IV of Panzerjager-Abt 228, 116.Panzer Division, during the fighting south of Argentan in mid-August 1944 covering the approaches to the Falaise gap.

F

HALTING *GOODWOOD*, JULY 18, 1944

The decimation of the British 11th Armoured Division during Operation *Goodwood* on the morning of July 18 is often attributed to a battery of four 8.8cm Flak guns of Flak-Rgt Möser located in the village of Cagny and commandeered by Kampfgruppe von Luck of the 21.Panzer Division. Most of the casualties were probably inflicted by StuG.Abteilung 200 and the Tiger tanks of s.Pz.Abt 503. Becker's StuG.Abt 200 was equipped with 17 Geschützwagen 7.5cm PaK 40s, as seen here in the foreground, and 24 Geschützwagen 10.5cm lFH.18s, seen in the background. On July 18, these were divided into five companies, nominally consisting of four Pak 40 assault guns and six 10.5cm lFH 18 assault guns. One of the companies was destroyed by the preliminary carpet bombing. The remaining four companies spent most of the day ambushing the advancing tanks of the 11th Armoured Division. The 21.Panzer Division was later credited with knocking out 300 British tanks during Operation *Goodwood*.

Allied claims of German tank losses, D-Day to August 1944*						
	Pz III	**Pz IV**	**Panther**	**Tiger**	**Unidentified**	**Total**
First Canadian Army		16	13	10		39
Second British Army	12	211	249	122	260	854
First US Army		82	34	27	52	195
Third US Army					108	108
Total	**12**	**309**	**296**	**159**	**420**	**1,196**

**FUSA claims thru Aug 6, Canadian thru Aug 11, British and TUSA thru Aug 12.*

Kluge responded to Operation *Cobra* by shifting the relatively unbloodied 2.Panzer Division and 116.Panzer Division to the American sector, hoping to choke off the American advance. At this stage, the balance of Panzer forces in Normandy had shifted westward, with six Panzer divisions under 7.Armee command facing the First US Army and only five Panzer divisions remaining under Panzergruppe West in the Caen sector. Of five in the Caen sector, both the 21.Panzer Division and 12.SS-Panzer Division had been burned out by their continual fighting and were in a process of emergency reorganization. The initial attempts to block Operation *Cobra* were a failure due to the relative weakness of the forces involved. The 116.Panzer Division had suffered significant losses, both from air attack and mechanical breakdown, during its hurried road-march to the battle zone.

Hitler realized that the German defenses in Normandy were about to be outflanked from the west. Again, he insisted on a bold Panzer offensive with an aim to push to Avranches on the coast, cutting off Patton's Third US Army. The only available Panzer reserves were those in Panzergruppe West in the British/Canadian sector that had been hoarded for the planned August 1 Caen offensive. The Caen offensive was canceled and the 1.SS-Panzer Division was diverted to Operation *Lüttich*, the offensive toward Avranches.

August 7 was a critical turning point in Normandy due to three key events. Firstly, Operation *Lüttich* proved to be a fatal mistake. It overestimated the offensive capabilities of the emaciated Panzer divisions against the US Army, and weakened the defenses in the Caen sector in the face of an emerging threat from the First Canadian Army. From the scattered records that remain, it would appear that about 250 tanks and 60 assault guns/tank destroyers were deployed by the 47.Panzer Korps at the start of Operation *Lüttich*. The Panzer offensive was launched on August 7, and quickly fizzled out when it ran into stiff US infantry resistance at Mortain and massed rocket attacks by Typhoon fighter-bombers. Fifty tanks, including 34 Panthers and 16 PzKpfw IVs, were lost, as well as 14 assault guns and tank destroyers, in the first few days of fighting. An additional number of Panzers and AFVs had suffered combat damage or mechanical problems and were no longer operational.

Later the same day, the First Canadian Army launched Operation *Totalize* against the weakened German defenses south of Caen.

A column of Jagdpanthers of the 3./s.Panzerjäger-Abt 654 in Bourgtheroulde-Infreville, during the retreat to the Seine River near Elbeuf on a rainy day in August 1944. This scene was probably photographed on August 21/22 while the surviving vehicles were moving to a ferry site over the Seine near Caudebec-lès-Elbeuf. The lead vehicle, commanded by Feldwebel Heye, was towing the disabled vehicle behind it. This was against regulations, but done under the desperate circumstances of the retreat from the Falaise area.

Although it did not reach its goal of Falaise, this attack penetrated further than any previous offensive in the Caen sector.

August 7 was a turning point for a third reason. Eisenhower, Bradley, and Montgomery had agreed that the original *Overlord* plan that sent Patton westward to take ports in Brittany was misguided. They felt Patton's Third US Army would be better used to exploit the chaotic conditions behind the German forces in Normandy and race eastward for the Seine River instead. There was a complete void behind Heeresgruppe B that was ripe for exploitation by Patton.

This Tiger II, tactical number 104, of 1./s.SS-Pz.Abt 101, commanded by SS-Oberscharführer Sepp Franzl, was one of three surviving tanks from the unit that attempted to stop the British 8th Armoured Brigade near Goincourt, west of Beauvais, on August 30. This tank suffered from suspension damage and was abandoned after its drive shaft broke. It was subsequently recovered and has been displayed at the Royal Military College at Shrivenham and The Tank Museum, Bovington.

Hitler refused to withdraw the Panzer forces from the *Lüttich* mission, blaming Kluge for messing up his plan. He insisted that *Lüttich* start again once additional Panzer forces arrived, including the 10.SS-Panzer Division. The Caen sector was stripped bare, with only three understrength Panzer divisions, while there were eight in the 7.Armee sector facing the American breakthrough. On August 9, Eberbach was instructed by Hitler to take command of the 7.Armee attack force, dubbed Panzergruppe Eberbach; Panzergruppe West was renamed as 5.Panzer Armee and put under command of Generaloberst der SS Sepp Dietrich. In the wake of the costly Mortain fighting, Panzergruppe Eberbach could only muster 77 PzKpfw IVs and 47 Panther tanks, even after Hitler had allotted it all of the theater reserve. Given such weak forces, Hitler's plan to revive the Avranches attack was delusional. In the event, the second phase of *Lüttich* never took place. Panzergruppe Eberbach was decimated during its attempts to hold on to the Argentan area to keep open the southern side of the Falaise gap.

On August 15, the situation went from disastrous to impossible. Hitler called it the worst day of his life. Patton's Third US Army had raced eastward behind the German defense, capturing Chartres and Orléans, with no appreciable German defenses in front of them all the way to Paris. The

When Patton's Third US Army began its race for the Seine in mid-August, the Germans threw in a number of improvised security units to halt them. This heavily camouflaged war-booty Somua S-35 tank of Panzer-Kompanie, Sicherungs-Regt 101, was one of two lost while defending Montargis against the 5th Infantry Division in late August 1944. It is seen here being towed off the road by a M31 tank recovery vehicle.

First Canadian Army then launched Operation *Tractable*, again aimed to close the Falaise gap. Meanwhile, in southern France, the Seventh US Army conducted Operation *Dragoon*, the second of the two *Overlord* amphibious landings, and quickly threatened to rout German forces there and in central France. At this time, the Wehrmacht had only about 165 operational tanks in Normandy facing some 4,000 British/Canadian and 3,000 US tanks. At 1700hrs on August 15, Hitler finally relented and allowed Heeresgruppe B to begin the retreat out of Normandy through the Falaise–Argentan gap. But it was already too late.

Over the course of the next week, Heeresgruppe B lost most of its surviving tanks and AFVs. Allied operational research teams later discovered 470 destroyed or abandoned German tanks and AFVs stretching from the Falaise area up to the Seine river crossings. The Heeresgruppe B war diary for August 22–23 reported that its Panzer divisions had been reduced to 67–72 operable tanks, as detailed in the chart here. The remnants of the 9.Panzer Division and 17.SS-Panzergrenadier Division had retreated towards the Paris area, while Panzer-Lehr Division had been withdrawn earlier and was in the process of refitting, so these divisions were not included in these totals.

Heeresgruppe B Panzer Division strength, August 22–23

	Date	Tanks	Infantry	Artillery
2.Pz	Aug 23	0	1 bn	0
21.Pz	Aug 23	10	4 weak bn	
116.Pz	Aug 23	12	2 bn	2 bty
1.SS-Pz	Aug 23	0	Weak	0
2.SS-Pz	Aug 22	15	450 men	6
9.SS-Pz	Aug 22	20–25	460 men	20 guns
10.SS-Pz	Aug 22	0	Weak	0
12.SS-Pz	Aug 22	10	300 men	0

G

1. PANTHER AUSF A, 3./PANZER-REGIMENT 3, 2.PANZER DIVISION, AUGUST 1944

This Panther Ausf A shows the typical markings of the 2.Panzer Division, including the divisional trident insignia in front of the tactical number. This tank has the *zimmerit* pattern typical of tanks built at MAN.

2. PANTHER AUSF A, 4./SS-PANZER REGIMENT 2, KG STADLER, 2.SS-PANZER DIVISION "DAS REICH," GUESNAY, JULY 27, 1944

A popular myth of the Normandy campaign is that SS-Ustuf Ernst Barkmann single-handedly held back an American tank column during the *Cobra* breakout, destroying nine Sherman tanks and numerous other vehicles. The reality of "Barkman's Corner" was somewhat more mundane. On June 27, he positioned his Panther under some trees near the Hôtel Maître-Nicole west of Le Hameau Guesnay at the intersection of contemporary routes D227 and D972 in support of "Das Reich" Panzergrenadiers. From this position, at a range of about 350 meters, he ambushed a column of the 4th Cavalry Squadron (Mecz), knocking out two M5A1 light tanks, two M8 light armored cars, and six jeeps. Barkmann's Panther, tactical number 424, was hit by so many rounds of machine-gun fire that the hull periscopes were shattered. He withdrew from the scene back to a field workshop at the Château de Virville for repairs. The next day, Barkmann's Panther left the workshop towing Panther number 413. This only exacerbated the mechanical problems with Barkmann's Panther, and he finally abandoned it in the village of Grandin around noon on July 30. His tank was festooned with foliage camouflage on the day of the fighting, with chicken wire wrapped around the barrel to assist in attaching foliage. A detailed account of the incident can be found in: Deprun, Frédéric, "Les Panthers de la Das Reich (8): Le vrai périple de Barkmann 27 au 31 juillet 1944" in *Normandie 1944*, No. 25 (Nov–Dec 2017), pp.42–101.

1

2

There are no known German records indicating how many tanks and AFVs escaped over the Seine. A later RAF study estimated that about 200 tanks reached the Seine, of which about 135 escaped across the river, while some 60 were left abandoned on the western bank due to breakdown or a lack of suitable ferries.

The escape over the Seine was not a reprieve for surviving Panzer units. Many of the tanks and AFVs that had escaped were in poor mechanical condition, and there was a general lack of spare parts and maintenance equipment. During the hasty retreat to Belgium and Germany, additional tanks and AFVs were lost. In early September, much of the 5.Panzer Armee was trapped in the Mons pocket and other areas by the advancing Allied forces.

By the time the retreat had ended in mid-September, Heeresgruppe B had been reduced to 134 tanks and AFVs, of which only 84 were operational. Some of the tanks and AFVs on hand in September were not Normandy veterans but rather replacement tanks that had arrived in late August and early September. For example, Panzer-Lehr Division had been supplied with 25 Panther tanks during its reconstruction from August 15–24; the Nachschub West replacement depot had received 31 PzKpfw IV tanks between August 19 and September 1; and the 17.SS-Panzergrenadier Division absorbed the equipment of the still-born 26.SS- and 27.SS-Panzer Divisions.

German tank and AFV strength, Heeresgruppe B, September 12, 1944

Type	Panther	PzKpfw IV	StuG & JgPz IV	Stu.Pz IV
1.SS-Pz.Div				
2.SS-Pz.Div		2+3*		
9.SS-Pz.Div		2+2	8	
12.SS-Pz.Div	1	4+2		
17.SS-Pz.Gren.Div		2	2+18	
2.Pz.Div			2+3	
9.Pz.Div		2+2	5	
21.Pz.Div				
116.Pz.Div	19	2+20	4	
Pz.Lehr Div	11	18		
Stu.Pz.Abt 217				2
Total	**31**	**61 (32+29)**	**42 (21+21)**	**2**

**Operational + in repair*

Source: General der Panzer-Truppen West, Panzerlagemeldung (Stand v. 12.9.44)

BATTLE ANALYSIS

The Panzer force in Normandy largely failed at the strategic and operational level, though it was more successful at the tactical level. Berlin shifted the majority of its Panzer forces to the West in the spring of 1944 in the expectation that a concentrated Panzer counteroffensive could push the Allies back into the sea. As detailed earlier, this failed to take place. Heeresgruppe B was unable to conduct a large Panzer counteroffensive until Operation *Lüttich* in August 1944, and that operation only served to accelerate the German defeat in Normandy.

A Panther Ausf A, number 321, of 3./Panzer-Regiment 3, 2.Panzer Division, that was abandoned south of Rauray sector on June 28 during the fighting with the British 8th Armoured Brigade during Operation *Epsom*. The divisional trident insignia can be seen on the turret. It is seen here near Balleroy on July 10 being inspected by American troops prior to being used as the test subject to determine whether the 17-pdr with APDS could penetrate its tough frontal armor.

The reasons for this strategic failure were due in part to the Allies' Operation *Fortitude* deception which confused Berlin about Allied plans. This led to a piecemeal commitment of the Panzer force through July and August instead of an immediate concentration in Normandy in June. This problem was exacerbated by Berlin's blindness to the threat of Allied air power in inhibiting the mobility of Panzer forces. At the operational level, air power made it difficult to quickly move the Panzer force due to the demolition of the French railway network by bombing and the threat of air attack against any large train movements. Air power, as well as Allied firepower superiority, greatly inhibited Panzer movement at the tactical level, making daylight movement difficult or impossible.

Uncertain whether Normandy was the main Allied invasion, Berlin failed to come up with an operational scheme to trap the Allies in Normandy and thereby create a stalemate in the West. There were insufficient infantry divisions of adequate quality to create a durable main line of resistance. This was largely due to Hitler's delay in shifting infantry divisions from Brittany, southern France, and the Low Countries to Normandy, to say nothing of his refusal to conduct a broader strategic realignment from areas of occupied Europe such as Italy, Norway, and Greece. Instead, the small number of infantry divisions in Normandy were rapidly burned out, forcing the commitment of Panzer divisions to reinforce the main line of resistance. Consequently, the value of the Panzer divisions in Normandy was diminished by their tactical misuse.

The dogged defense by the Panzer divisions, especially against the British/Canadian forces in the Caen sector in July, was the principal tactical success of the Panzer divisions in Normandy. The Wehrmacht inflicted disproportionate casualties on the British tank force and succeeded in halting or significantly reducing the British offensive operations. However, the Wehrmacht could not win a campaign based on tank attrition. By early August, the Panzer force in Normandy had been gutted, with no prospects for re-equipment; Allied tank forces had meanwhile grown considerably in strength.

A PzKpfw IV Ausf H, probably from 5./I./Pz.Rgt.33, 9.Panzer Division, about 8km west of Sées in the Forêt Dominale d'Ecouves. This regiment was largely destroyed in the fighting against the French 2e Division Blindée and US 5th Armored Division of Patton's XV Corps on August 12–13 in the forest during efforts to keep open the southern side of the Falaise gap. The extra track armor is the style seen on other tanks of the 5.Kompanie.

Tank casualties during major British/Canadian armor offensives in Normandy			
Operation	**Dates**	**Allied tank casualties**	**German tank casualties**
Perch	Jun 12–13	35	10
Epsom/Martlet	Jun 25–Jul 1	150	115
Charnwood	Jul 8–9	80	30
Goodwood	Jul 18–20	275–493	85
Bluecoat	Jul 30–Aug 7	236	115
Totalize	Aug 7–11	150	60
Tractable	Aug 14–16	50	35
Total		**976–1,194**	**450**

The table here summarizes relative losses in the major offensives. These totals are estimates in many cases, in part due to lack of documentation and the discrepancies between tanks knocked out but recoverable versus total losses. This suggests an exchange ratio of greater than 2:1 in favor of the Germans. British commanders felt that the exchange ratio was often in their favor when repulsing German counterattacks, but these were on many occasions small-scale actions that are difficult to quantify. The Germans believed that about 70 percent of the Allied tank casualties were suffered in the British/Canadian sector, as detailed in the accompanying chart.

German claims of Allied tank losses in Normandy D-Day to Aug 5, 1944			
	British/Canadian	**US**	***Total***
Jun 6–15	104	57	161
Jun 16–25	528	161	689
Jun 26–Jul 5	546	68	614
Jul 6–25	279	268	547
Jul 26–Aug 5	478	282	760
Total claims	***1,935***	***836***	***2,771***
Actual losses*	**1,053**	**647**	**1,700**

**Actual figure is based on British/US records*

Many tanks were lost during the withdrawal through the Falaise gap. This Panther Ausf A, tactical number 231, of I./Pz.Rgt.3, 2.Panzer Division, was abandoned on Rue Emil Zola in the outskirts of Chambois on August 18–19. The tank was recovered and later restored in the Wheatcroft Collection.

The extent of attrition in the Panzer force in Normandy has remained obscure due to a lack of data. Most divisional records were lost during the calamitous retreat out of the Falaise pocket. The only comprehensive overviews of German tank and AFV losses in the summer of 1944 are a series of reports of the Heereswaffenamt of the OKH (Oberkommando des Heeres) that are summarized in the chart below. The most obvious problem is that the totals for June–August are clearly too low and the numbers for September are unbelievably high given the lack of large-scale tank fighting. The September Lorraine Panzer offensive against Patton's Third US army cost about 340 Panzers and AFVs; a modest number of tanks were lost in the fighting associated with Operation *Market Garden* and these may not have been written off until the October tally.

The reason for this disparity was the peculiarities of German record-keeping. Until 1943, the practice was to report Panzer strength in four categories: operational tanks, tanks in short-term repair, tanks in long-term repair, and total losses. The German Army generally considered "total losses" to mean only those tanks that

suffered irredeemable damage or that could not be recovered and were in enemy hands. Tanks that were combat-damaged, whether they could be repaired in the field or needed to be returned to factories in Germany, were still kept on strength and not written off. In April 1944, the Wehrmacht instituted new, simplified reporting procedures. Panzer units were instructed to report only operational strength and short-term repairs to corps headquarters, since the other reporting categories were irrelevant to operational considerations. As a result, the surviving Heeresgruppe B records provide only an incomplete picture of the status of the Panzer inventory in Normandy.

The surviving Tiger tanks of 1.Kompanie and 2.Kompanie, s.Pz.Abt 503, were unable to locate Seine ferries near Elbeuf in mid-August. Most of the surviving tanks, including this Tiger II with early turret of 1./s. Pz.Abt 503, were abandoned and set on fire on RN 179 between Vimoutiers and the Alloard farm on August 20. (LAC PA-115746)

The low figures in the HWA/OKH loss reports for June and July presumably cover only "total losses," even though a significant portion of the Panzer force was sidelined with mechanical problems and/or combat damage. The figures for August are ridiculously low, presumably because the units did not provide sufficient reports to higher commands during the chaos of the retreat across northern France. The exceptionally high losses in September presumably account for the enormous number of tanks and AFVs left behind in France during the August retreat but only written off in September once conditions were less chaotic.

German AFV losses in the West: June–September 1944

	Jun	Jul	Aug	Sep	Total
PzKpfw II	1	7		14	22
PzBefWg/Beo III*	1	2	1	72	76
PzKpfw IV	126	149	53	612	940
PzKpfw IV/70				17	17
Panther	80	125	41	540	786
Tiger	19	14	15	93	141
Tiger II				23	23
StuG III	27	68	98	379	572
StuG IV				2	2
Sturmpz IV			14	2	16
Marder I	9			55	64
Marder II	5	10	24	23	62
Marder III	15	5	0	71	91
JgPz 38				71	71
Jagdpanther				24	24
Panzer sub-total	227	297	110	1,371	2,005
StuG sub-total	27	68	112	383	590
PzJag sub-total	29	15	24	244	312
Total	**283**	**380**	**246**	**1,998**	**2,907**

**Bef=Befehlspanzer (Command tank).*
Beo=Beobachtungspanzer (Observation tank)

As a result, the HWA/OKH data provides a partial picture of total German tank/AFV losses in France, even if the monthly figures are extremely suspect. Furthermore, the data is far from complete, completely omitting some types of equipment such as war-booty French tanks and the

Becker conversions, as well as some other types such as the Jagdpanzer IV. Other figures are suspect too. For example, only two StuG IVs are listed as casualties when it is clear from divisional records that the 17.SS-Panzergrenadier Division had a starting strength of 42, which was down to seven on August 15 and none a month later. There is no data at all for whether Panzer units in France were able to send badly damaged vehicles back to Germany for rebuilding or scrapping during the course of the campaign. Given the state of the French railways near the front, probably few if any tanks were evacuated.

Of the roughly 2,560 tanks and AFVs deployed to Normandy until August 1944, Heeresgruppe B could muster only about 135 in the second week of September 1944. This suggests that overall losses in Normandy were greater than 2,425 tanks and AFVs, or more than 95 percent of the force deployed to Normandy.

FURTHER READING

Books

Avoie, Fabrice, *Sarthe, août 1944: Histoire d'une Liberation*, Galaxy, Le Mans (2009)

Bernage, Georges, *Les Panzers face au Débarquement 6–9 juin 1944*, Heimdal, Bayeux (2012)

Bernage, Georges, *The Panzers and the Battle of Normandy*, Heimdal, Bayeux (2000)

Cazenave, Stephen, *Panzers Normandie 44: SS-Panzer Regiment 1 LAH*, Maranes, Bayeux (2016)

Deprun, Frédéric, *2.Panzer-Division Normandie 1944, Tome 1: Reformation et combats janvier–juin 1944*, Heimdal, Bayeux (2020)

Deprun, Frédéric, *Panzer en Normandie: Histoire des équipages de char de la 116. Panzerdivision, juillet–août 1944*, Ysec, Louviers (2011)

Deprun, F. & Jouault, Y., *Villers-Bocage: Autopsie d'une Bataille*, Heimdal, Bayeux (2005)

Fürbringer, Herbert, *9.SS-Panzer Division Hohenstaufen*, Heimdal, Bayeux (1984)

Guderian, Heinz Günther, *From Normandy to the Ruhr with the 116th Panzer Division in World War II*, Aberjona, Bedford (2011)

Haasler, Timm & Vortsers, Simon Vortsers, *Combat History of Sturmpanzer-Abteilung.217, Panzerwrecks*, Old Heathfield, (2020)

Kortenhaus, Werner, *The Combat History of the 21.Panzer Division*, Helion, Solihull (2014)

Lefèvre, Eric, *Panzers in Normandy Then and Now,* After the Battle, London (1983)

Lehmann, Rudolf & Tiemann, Ralf, *The Leibstandarte, Vol. IV/1*, Federowicz, Winnipeg (1993)

Leleu, Jean-Luc, *10.SS-Panzer Division Frundsberg*, Heimdal, Bayeux (1999)

Lochmann, Franz-Wilhelm *et. al.*, *Tiger-Abteilung 503: La schwere Pz.Abt.503 du front de l'Est à la Normandie*, Heimdal, Bayeux (2013)

Lodieu, Didier, *D'Argentan à la Seine: Le bataillon de Panther de la 9.Pz.Div. face au XV Corps americain*, Ysec, Louviers (2003)

Lodieu, Didier, *Percez! La 2.Panzer Division dans la poche de Falaise-Chambois du 13 au 23 août 1944*, Ysec, Louviers (2014)

Lodieu, Didier, *The 116.Panzer Division's Panther Battalion in Normandy July–August 1944*, Histoire & Collections, Paris (2012)
von Luck, Hans, *Panzer Commander*, Praeger, New York (1989)
McNair, Ronald, *Repli sur la Seine: la débâcle allemande*, Heimdal, Bayeux (1984)
Meyer, Hubert, *The History of the 12.SS-Panzerdivision Hitlerjugend*, Federowicz, Winnipeg (1994)
Münch, Karl-Heinz, The Combat History of schwere Panzerjäger Abteilung 654, Federowicz, Winnipeg (2002)
Nevenkin, Kamen, *Fire Brigades: The Panzer Divisions 1943–45*, Federowicz, Winnipeg (2008)
Perrigault, Jean-Claude, *21.Panzer Division*, Heimdal, Bayeux (2002)
Perrigault, Jean-Claude, *La Panzer-Lehr-Division*, Heimdal, Bayeux (1995)
Restayn, Jean, *Tiger I on the Western Front*, Histoire & Collections, Paris (2001)
Ritgen, Helmut, *The Western Front: Memoirs of a Panzer Lehr Officer*, Federowicz, Winnipeg (1995)
Schneider, Wolfgang, *Tigers in Combat*, Vols 1 &2, Federowicz, Winnipeg (1994, 1998); Vol. 3, Helion, Solihull (2016)
Számvéber, Norbert, *Waffen-SS Armour in Normandy*, Helion, Solihull (2012)
Weidinger, Otto, *Das Reich, 1943–1945*, Vol. V, Federowicz, Winnipeg (2012)
Wind, M. & Günther, H. (eds), *Kriegstagebuch 17.SS-Panzergrenadier-Division 30 Oktober 1943 bis 6 Mai 1945,* Schild, Munich (1993)
Wood, M. & Dugdale, J., Waffen SS Panzer Units in Normandy 1944, Books International, Farnborough (2000)
Zetterling, Niklas, Normandy 1944: German Military Organization, Combat Power and Organizational Effectiveness, Casemate, Havertown (2019)

US Army foreign military studies

Dingler, Hans-Jürgen, *58 Panzer Korps: Battles in Normandy and Northern France*, FMS A-955
Eberbach, Heinz, *Panzergruppe West: 3 July–9 August 1944*, FMS B-840 (1948)
Eberbach, Heinz, *Panzer Group Eberbach and the Falaise Encirclement*, FMS A-922 (1946)
Geyr von Schweppenburg, Leo, *Panzer Tactics in Normandy*, ETHINT 13 (December 1947)
Geyr von Schweppenburg, Leo, *Panzer Group West: Mid 1943–5 July 1944*, FMS B-466 (1947)
Guderian, Heinz, *Panzer Tactics in Normandy*, ETHINT 38 (January 1948)
Guderian, Heinz, *Employment of Panzer Forces on the Western Front*, ETHINT 39 (August 1945)
Hodgson, James, *The German Defense of Normandy: The Situation at the Beginning of July 1944,* FMS R-24 (1953)
Hodgson, James, *The German Defense of Normandy: 1 July 1944 Before the Offensive*, FMS R-49 (1954)
Hodgson, James, *The German Defense of Normandy: The Battle of the Hedgerows*, FMS R-54 (1954)
Hodgson, James, *The German Defense of Normandy: The Eve of Defeat – 18 July–end of July 1944*, R-57 (1954)
Hodgson, James, *The German Defense of Normandy: Thrust-Counterthrust – The Battle of France*, FMS R-58 (1954)
Krüger, Walter, *58 Panzer Korps: 24 Jul–15 Nov 1944*, FMS B-445 (1946)

INDEX

Page numbers in **bold** refer to illustrations and their captions.

7.5cm PaK 40 auf mSPW S307(f) **26**

air power 43
anti-tank guns 7, 10
armament
  7.5cm 19
  7.5cm PaK 40 24, 26, **26**
  8.8cm 19
  10.5cm howitzers 26
  75mm 17
  short L/24 7

Barkmann, SS-Ustuf Ernst **G2(40–41)**
Becker conversions 7, **8**, 10, 24, 26, **26**, 46
British and Canadian formations
  First Canadian Army 14, 16, 38–39, 40
  3rd Canadian Infantry Division 28
  7th Armoured Division 19
  8th Armoured Brigade **D2(24–25)**
  11th Armoured Division **6**, **F(35–37)**
  Regina Rifles **16**, **29**, **30**

Caen 17, 26, 30, 32, 34–35, 35, 38, 38–39, 43
Carentan 33
Caumont–Bayeux Panzer offensive 29–30
Cherbourg 8, 33
combat effectiveness 22–23, 42–46
Cotentin peninsula 11
counteroffensive plan 28–29, 33–34
Cromwell tank 23

Dollmann, Generaloberst Friedrich 4

Eberbach, Heinrich 13, 17, 32, 34, 39
Évrecy **C1(20–21)**

Falaise gap 22, **35**, 40, **44**
formations 5
  1.SS-Panzer Division "Leibstandarte Adolf Hitler" 6, 27, 34
  I SS-Panzer-Korps 29, 30
  2.Panzer Division 12, **17**, 27, 30, 38, **G1(40–41)**, **43**, **44**
  2.SS-Panzer Division "Das Reich" 6, **A2(8–9)**, **B1(14–15)**, 27, 30, 33, **33**, **G2(40–41)**
  II SS-Panzer Korps 30
  5.Panzer Armee 5, 39, 42
  7.Armee 4–5, 14, 33, 38, 39
  9.Panzer Division 4, 7, **B2(14–15)**, **19**, 33, **35**, 40, **43**
  9.SS-Panzer Division 6, **33**
  10.SS-Panzer Division 6, 7, 39
  11.Panzer Division 33
  12.SS-Panzer Division "Hitlerjugend" 11, **16**, 26–27, 28, 38
  17.SS-Panzergrenadier Division 7, 23, **23**, 27, 33, 35, 40, 46
  21.Panzer Division 7, **A1(8–9)**, 12, 24, 26, **26**, 28, **28**, 34, **F(35–37)**, 38
  47.Panzer Korps 38
  91.Luftlande Division **28**
  116.Panzer Division **5**, 7, 12, 33, **35**, 38
  276. Infanterie Division **6**
  Heeresgruppe B 4, 12, 33, 34, 40, 42, 46
  Heeresgruppe G 4, 13–14
  Kampfgruppe Schnepf **6**
  Kampfgruppe von Luck **F(35–37)**
  Panzergruppe Eberbach 5, 39
  Panzergruppe West 4–5, 12, 13
  Panzer-Kompanie (Funklenk) 314 **18**, 22
  Panzer-Lehr Division 4, 7, 11, 14, 18, 27, 29, **32**, 33, 35, 40, 42
  Panzer-Regiment 3 **17**, **G1(40–41)**, **43**, **44**
  Panzer-Regiment 6 **13**, **32**
  Panzer-Regiment 22 7, **A1(8–9)**, **28**
  Panzer-Regiment 24 **5**
  Panzer-Regiment 33 **35**, **43**
  Panzer-Regiment 100 7
  Pz.Ers.u.Ausb.Abt 100 8, **10**
  s. Panzer-Abt 206 8
  s. Panzer-Abt 503 22, **D1(24–25)**, 34, **F(35–37)**, **45**
  s. Panzerjager-Abt 50 **7**
  s. Panzerjäger Abt 200 34
  s. Panzerjager-Abt 228 **35**
  s. Panzerjäger Abt 243 **19**, **28**
  s. Panzerjäger-Abt 654 **6**, 10, 23–24, **E2(30–31)**, **38**
  Schnelle Brigade West 7
  Schnelle-Brigade 30 **20**
  SS.Panzer-Regiment 1 **34**
  SS-Panzer Regiment 2 **A2(8–9)**, **33**, **G2(40–41)**
  SS-Panzer-Regiment 12 "Hitlerjugend" **6**, **14**, **16**, **29**, **30**
  s. SS.Panzer-Abt 17 **23**
  s. SS.Panzer-Abt 101 **C(20–21)**, **D2(24–25)**, **32**, **39**
  s. SS-Panzerjäger-Abt 17 **10**, **E1(30–31)**
  StuG.Abt 200 26, **26**, **F(35–37)**
  Sturmpanzer-Abt 217 8, **24**
Franzl, SS-Uscha Sepp **D2(24–25)**

Geschützwagen 7. **26**, **F(35–37)**
Geyr von Schweppenburg, General der Panzertruppe Leo Freiherr 4, 12, 12–13, 14, 16, 28–29
Goincourt **D2(24–25)**, **39**
Guderian, General Heinz 12, 13, 14

Hausser, Generaloberst der Waffen-SS Paul 4, 14
Hitler, Adolf 12, 13, 29–30, 34, 38, 39, 40, 43

infantry divisions 10, 13, 32, 43

Jagdpanther **6**, 10, 23–24, **E2(30–31)**, **38**, 45
Jagdpanzer IV 24, **E1(30–31)**, **35**, 46

kill rates 43–44
Kluge, GFM Günther von 13, 14, 34, 38

La Fière bridge causeway 8, **28**
losses **5**, **13**, **17**, 22, **23**, 28, **29**, 32, **34**, 35, 38, 40, 43–46

M4 Sherman 18–19, 23, **30**
Marder 24, 26
Marder I **8**, 10, 26, 45
Marder II 7, 45
Marder III 10, **10**, **19**, 45
Mons pocket 42

Normandy
  Allied breakout 32
  invasion of 26–29, **28**
  retreat from 40, 42, **45**

OB West 4, 13–14, 26, 33
Oberkommando der Wehrmacht 4, 13
Oberkommando des Heeres 44–46
Operation *Avalanche* 11–14
Operation *Bluecoat* **6**, 35
Operation *Charnwood* 34
Operation *Cobra* 14, **23**, 35, 38, **G2(40–41)**
Operation *Dragoon* 40
Operation *Epsom* 30, 34, **43**
Operation *Fortitude* 27, 43
Operation *Goodwood* 22, **33**, 34, **F(35–37)**
Operation *Husky* 11–14
Operation *Lüttich* 5, **34**, 38, 39, 42
Operation *Market Garden* 11, 44
Operation *Martlet* 30, 34
Operation *Neptune* 26–27
Operation *Perch* 19
Operation *Shingle* 11–14
Operation *Totalize* **26**, 38–39
Operation *Tractable* 40
operational doctrine 11–14
operational rate 17, 18, 19, 23–24
operational strength 4, 26, 27, 32, 35, 40, 42, 46
organization 4–8, 10–11

Panther 16–18, 23, **35**, 38, 45
  Ausf A **5**, 7, 11, **13**, 17, 22, **32**, **34**, **35**, **G(40–41)**, **43**, **44**
  Ausf G **16**, 23, **29**, **33**
Panzer divisions 5–7, 13, 16, 24, 32, 43
Panzergrenadier regiments 6, 16
Panzerjäger battalions 6, 10, 24
Panzerspähwagen II Ausf L Luchs **B2(14–15)**, 45
PzKpfw 35R(f) **20**
Pzkpfw II Ausf L **19**
PzKpfw III 7, **B1(14–15)**
PzKpfw IV 7, 16, 18–19, **35**, 38, 45
  Ausf C **A1(8–9)**
  Ausf H **6**, **A2(8–9)**, **14**, 18, 22, 23, **28**, **32**, **33**, **43**
  Ausf J **17**, 18

reinforcements and replacements 6, 10–11, 26–27, 33
Rommel, Erwin 11, 12, 26, 28–29, 34
Rundstedt, GFM Gerd von 4, 13
Russian Front 4, 5, 11, 14, 16, 17, 18, 19, 23, 24, 33

Saint Lô 33, 34
security units 8
Seine
  escape over 42, **45**
  race for 39, **39**
spare parts 17
StuG III 8, 10, 18, 22, 23, 24, **28**, 45
StuG IV 23, **23**, 45, 46
Sturmpanzer IV 8, **24**

tactics 11–14, 16
tank production 11
technical characteristics, comparative 22
Tiger I 8, **17**, 19–20, **C(20–21)**, 22, 23, **32**, **35**, 45
Tiger II (Kingtiger) **18**, 22, 23, **D(24–25)**, **39**, 45, **45**

US Army 7, 8, 14, 32–33, 35, 38, 40
  Third US Army 38, 39, 44

Villers-Bocage, battle at 8, 19, **C1(20–21)**, 22, **32**

Waffen-SS 6, 7, 8
war-booty 7, 8, **8**, 10, **10**, **20**, 26, **26**, 39, 45–46
Wittmann, Obersturmführer Michael **C1(20–21)**, 22, **32**

OSPREY PUBLISHING
Bloomsbury Publishing Plc
Kemp House, Chawley Park, Cumnor Hill, Oxford OX2 9PH, UK
29 Earlsfort Terrace, Dublin 2, Ireland
1385 Broadway, 5th Floor, New York, NY 10018, USA
E-mail: info@ospreypublishing.com
www.ospreypublishing.com

OSPREY is a trademark of Osprey Publishing Ltd

First published in Great Britain in 2021
This electronic edition published in 2021 by Bloomsbury Publishing Plc

© Osprey Publishing Ltd, 2021

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage or retrieval system, without prior permission in writing from the publishers.

A catalog record for this book is available from the British Library.

ISBN: PB 9781472843203; eBook 9781472843210
ePDF 9781472843227; XML 9781472843234

Index by Alan Rutter
Typeset by PDQ Digital Media Solutions, Bungay, UK

Osprey Publishing supports the Woodland Trust, the UK's leading woodland conservation charity.

To find out more about our authors and books visit **www.ospreypublishing.com**. Here you will find extracts, author interviews, details of forthcoming events and the option to sign up for our newsletter.

Author's Note

This book surveys the principal tanks used by the Wehrmacht during the Normandy campaign, as well as tank surrogates such as the Jagdpanzer (tank destroyer) and Sturmgeschütz (assault gun). Due to space limitations, it does not cover self-propelled field artillery or light armored vehicles such as armored cars and half-tracks. For convenience sake, the term "AFV" (Armored Fighting Vehicle) in this book refers to the tank surrogates such as assault guns and tank destroyers.

Glossary

AFV	Armored Fighting Vehicle
Bn	Battalion
GFM	Generalfeldmarschall: Field marshal
Heer	Army
Heeresgruppe	Army Group, a formation of several armies and corps
HWA	Heereswaffenamt: Wehrmacht weaponry office
KStN	Kriegsstärkenachweisungen: War establishment strength
OB West	Oberbefehlshaber West: High Command West (Rundstedt's/Kluge's HQ)
OKH	Oberkommando des Heeres: Army High Command
OKW	Oberkommando der Wehrmacht: Armed Forces High Command
OStuf	Obersturmführer: SS 1st lieutenant
Panzerjäger	Tank destroyer
Pz.E.u.Ausb.Abt	Panzer Ersatz und Ausbildungs Abteilung (Panzer replacement and training battalion)
s.Pz.Abt	schwere Panzer Abteilung: Heavy tank battalion
s.Pz.Jg.Abt	schwere Panzerjäger Abteilung: Heavy tank destroyer battalion
StuG	Sturmgeschütz: Assault gun
StuH	Sturmhaubitze: Assault howitzer
Stupa	Sturmpanzer: Assault gun (with 15cm heavy howitzer)
Uscha	Unterscharführer: SS corporal
Ustuf	Untersturmführer: SS 2nd lieutenant
Wehrmacht	(German) armed forces